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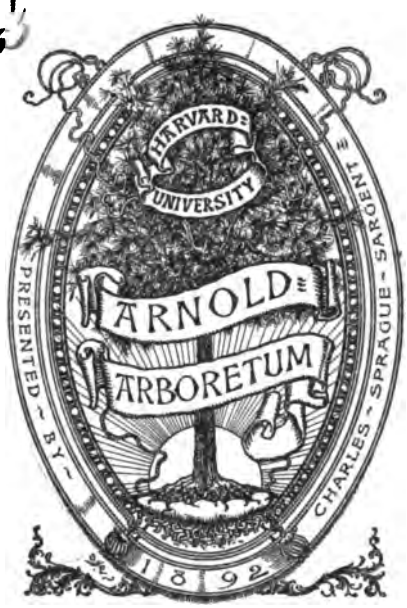
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UNIVERSITY
ARNOLD
ARBORETUM
PRESENTED BY
CHARLES SPRAGUE SARGENT
1892

The Gardener's Monthly

AND

HORTICULTURAL ADVERTISER.

DEVOTED TO HORTICULTURE, ARBORICULTURE, BOTANY & RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN,

FORMERLY HEAD GARDENER TO CALEB COPE, ESQ., AT SPRINGBROOK, AND AT THE BARTRAM BOTANIC GARDENS, NEAR PHILADELPHIA; GRADUATE OF THE ROYAL BOTANIC GARDENS, KEW (LONDON) ENGLAND, MEMBER OF THE ACADEMY OF NATURAL SCIENCES. AUTHOR OF "AMERICAN HAND-BOOK OF ORNAMENTAL TREES," ETC.

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Old Series, Vol. XV. *JANUARY, 1873.* *New Series, Vol. VI. No.* 1.

HINTS FOR JANUARY.

HINTS FOR THE MONTH.

At the beginning of every new year we note in our audience new features, among the many old faces, to whom some little introduction seems necessary. Be it known then that once on a time there was a little plot of land much given to gardening, which contained several millions of people, and they were all willing and anxious to do all things by rule and square. In those days there was little science. No one cared to know the reason of things. It was enough for them to know that work was to be done, and to do it. This little tract of land did not contain more than perhaps 8000 square miles, about the size of one of our average states, and as the sun rose and set generally at one time, and spring came in and spring went out nearly on the same day—nay, even the sun shone, and the rain fell, and the winds blew, pretty much all alike at one time over every part of it, it was very easy to set forth every day a job of work to be done that day in the garden. Hence arose good men who got up gardener's calenders, in which all the work of a garden was mapped out for the year—just what should be done on a certain day, and what should not. Some of the descendants of these men came to America, and of course they wanted the same thing done here. But how was this to be in a country where at one end the snow has hardly began to melt, and at the other end has ripe strawberries! A calender is preposterous! But besides this there is not the need in these days for this precise way of working. Science has pervaded the masses. They may not call it science, but the general application of abstract knowledge picked up here and there, is but science applied. All people need now is general suggestions, and what they have seen and heard of before enables them to turn these suggestions to a useful account. Thus we give in these columns but *seasonable hints*, generally timing them so much in advance, that any one in any part of the Union may profit by some of them.

FLOWER GARDEN AND PLEASURE GROUND.

To many of our readers the only "pleasure ground" they will have at this season is the few pots growing in windows or plant cabinets. But since the introduction of coal gas into our dwellings, it is not so easy to grow plants well as in former times. But as this gas is only lit up at night, if provision be made for enclosing plants from the fumes at night, they do pretty well. This is accomplished very easily where there are bay windows, by drawing curtains across, or by having plants so arranged that cases can be closed around them. New beginners in growing window plants often ask us how often they should water plants. The more freely a plant is growing, the more water will it require; and the more it grows, the more sun and light will it need. In all cases, those which seem to grow the fastest, should be placed nearest the light. The best aspect for room plants is the south-west. They seem like animals in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find her plants, by some unlucky calculation, frozen in the morning, do not remove them at once

to awarm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing. Sunlight will only help the frost's destructive powers.

It is better to keep in heat in cold weather by covering, where possible, than to allow it to escape, calculating to make it good by fire-heat, which is, at best, but a necessary evil. Where bloom is in demand, nothing less than 55° will accomplish the object; though much above that is not desirable, except for tropical hot-house plants. Where these plants are obliged to be wintered in a common greenhouse, they should be kept rather dry, and not be encouraged much to grow, or they may rot away.

After Cyclamens have done blooming, it is usual, at this season, to dry them off; but we do best with them by keeping them growing till spring, then turning them out in the open border, and repot in August for winter-flowering.

In potting window plants, the soil for potting should be used rather dry; that is it should be in such a condition that it will rather crumble when pressed, than adhere closer together. Large pots—those over four inches, should have a drainage. This is made by breaking up broken pots to the size of beans, putting them in the bottom a quarter or half an inch deep, and putting about an eight of an inch of old moss or any similar rough material over the mass of "crocks" to keep out the earth from amongst it. Little benefit arises from draining pots below four inch, the moisture filtering through the porous pots quite fast enough; and the few pieces of "drainage" often thrown in with the soil placed right over, is of little or no use.

Ferneries are now so deservedly popular, that we must have a word to say for them at times, though their management is so simple there is little one can say. It is probably their ease of management, and the great results obtained for the little outlay of care that has rendered them so popular. It should not, however, be forgotten that the case in which they are enclosed is not to keep out the air, but to keep in the moisture, as ferns will not thrive in the dry atmosphere of heated rooms. A few minutes' airing every day will, therefore, be of great benefit to them. Decayed wood, (not pine), mixed with about half its bulk of fibrous soil of any kind, and a very small proportion (say a tenth of the bulk) of well-rotted stable manure, makes a good compost. Most kinds particularly like well-drained pots. This is usually effected by filling a third of the pots in which the ferns are to grow with old pots broken in pieces of about half an inch square, on which a thin layer of moss is placed, before filling the pots, to keep out the soil from choking the drainage.

In regard to the kinds of plants for windows and rooms, as a general thing bulbous or succulent plants do best. Those plants which in their native places of growth choose dry places, seem also especially adapted to room culture if they have plenty of *sunlight*. The old wall-flowers and stockgillies are excellent for this purpose; and there are few things superior to the modern race of carnations, known as the perpetual or tree carnation. The English, single and double, and the Chinese primroses, together with the whole race of violets are capital for window culture, where the room is not too warm—they do not do well where the temperature is over 55°. These last named plants, especially, as well as many others, are liable to the attacks of the Red Spider, which is the great foe to window plant culture. They are so small as seldom to betray their existence until some damage is done. The first we know is a slight yellowish tint among the healthy green of the leaves, and then a common pocket lens will decide whether the little insect is doing the damge. On primroses and violets they usually keep on the under surface of the leaves, and hence are very difficult to be got at. We have found the best thing is the plan first recommended some years ago in the *Gardener's Monthly*, to take warm water, say about 120° or 130°, just a little greasy, and with a little powdered sulphur floating on it, and dip the plant in for an instant only. It will rarely destroy a leaf unless very tender, by growing too much in the shade, while it bothers the red spider badly. The Green Aphis may be got rid of in the same manner.

FRUIT GARDEN.

There are few things connected with fruit growing which gives greater pleasure than a knowledge of the names of the varieties. Utilitarians may say with truth that of all the long lists in the catalogues and in the books, the half of them are worthless, and of the other a dozen at most is all one need have. But there is a satisfaction in a good number of kinds, and though we find most men desirous to cut down their lists to two or three kinds, they always hesitate to do it, when the time for action comes. As then people will have an "assortment" of kinds,

it becomes an important question how to label them so that it shall be permanent, and yet not take too much labor and trouble to accomplish. In planting, the trees of course are in some kind or order, usually in rows, and a book should, at once on setting out, be provided, and the names entered therein in the order they run on the ground. But we do not want to have the book always with us, so must have labels attached to the trees in some way. The cheapest and easiest is the Wilder plan with the zinc labels. These are cut about four or six inches long and from one half to an inch wide, and after being put in water a day or so to oxydize, are written on with a common lead pencil. It needs no "chemical" ink. It is not very legible at first, but blackens with age. We believe such labels will last perfectly plain for fifty years or more. The only trouble we have found is in the wearing away of the holes through which the attaching wire passes, by the wind. If some "eyelet" of durable material could be stamped in the hole for the copper wire to rub against, it would be perfection. The wire must of course be loose enough to allow of the branch increasing in size, but even with this wires must be looked to sometimes, for wood does not grow as we all thought it did a few years ago, by a downward layer from the leaves, which would naturally push out of the way any foreign thing on the outside of the bark; but by the germination or budding out of cells, and thus even a loose wire will be enveloped by the new growth of wood, as badly as if it fitted tight, provided the wire be perfectly stationary. It is a good season to go over and examine the wires of fruit trees and attend to these other labeling and naming matters; of course when the weather is sufficiently warm to allow of it being done with comfort.

In young orchards some species of scale insects are likely to be troublesome. These should be killed by washing at this season. If the trees be very badly infested, cut back the young shoots, and the stouter branches can then be more thoroughly done. Some people use weak lye for washing, with good results; we do not object to some lime and sulphur going in with it. Old trees are very much assisted by having the rough bark scraped off of the trunk and main branches, and then coated with a similar wash. Never mind what people say about stopping up the "breathing pores." Try it once, and you will always want to repeat the practice.

This is generally supposed to be the pruning season. Orchard trees generally get too much pruning. In young trees only thin out so as not to have the main leaders crossing or interfering with one another. Or when a few shoots grow much stronger then the rest, cut these away. Insist on all the branches in young trees growing only on a perfect equality. On older trees which have been in bearing a number of years, it will often benefit to cut away a large portion of the bearing limbs. By a long series of bearings, branches will often get bark bound and stunted, preventing the free passage of the sap to the leaves. In such cases the sap seems to revenge itself by forcing out vigorous young shoots a long way down from the top of the tree. It is down to these vigorous young shoots that we would cut the bearing branches away. One must use his own judgment as to the advisability of this. If the tree bears as fine and luscious fruit as ever, of course no such severe work need be done, but if not, then now is the time.

And above all look after the nutrition of the trees. Some people say that land which will raise good corn will grow good fruit trees, which is all right; but they should add that like corn they require regular and continuous manuring. There are some parts of the country where corn can be successively taken for half a life time without manure; on these soils we need not manure fruit trees, but in all others we must to have good results. This is particularly essential where trees are grown in grass, as both the trees and the grass require food. Where trees are grown in grass, we prefer top dressing in June or July, but if it has not been done then, do it now. Where trees are kept under clean surface culture, the manure is of course ploughed or harrowed in with the crop in the spring of the year. To know whether trees require manure or not ask the leaves. If in July they are of a dark rich green, nothing need be done to them, but if they have a yellow cast, hunger is what is the matter. This of course is supposing they are not infested by borers, in which case they will be yellowish in the richest soil.

Yellowness will also sometimes come from trees being in wet ground while they are growing; but fruit trees should not be planted in wet ground. At the same time if one has a piece of wet ground desired to be used for orchard planting, we would not underdrain it. We do not think it ever paid any man to underdrain for an orchard. The roots in time, will very likely get into the drains and choke them. We would

rather plough the ground into narrow ridges, on which plant the trees. This can easily be done by starting the plough on the line where the trees are to go, and then continuing to plough towards this line on both sides, until a breadth of twenty or twenty-five feet is done. By another or several ploughings in the same beds, one can get the tree line a foot or two higher than the ditch, and in this way no surface water will ever be able to stay about the tree. After the trees are in, in succeeding years, the earth may be ploughed towards the stems of the trees, which will carry the beds still higher. The burying of the roots by this process will not hurt the trees, as the fibrous roots, which are the feeders, and are the ones which suffer from water, come to the surface with the increasing deposits. This will not only be found to be a much cheaper plan than underdraining, but the deep soil where the trees are growing will be found to have a wonderful effect on their growth. This plan is popular in some of the flat lands of the West. The celebrated orchard of Mr. M. S Dunlap, of the *Chicago Tribune*, is treated in this way.

In regard to grapes we have a great partiality to rich soil for these. Many so called failures undoubtedly arise from exhaustion of the soil. In this connection we must refer to Mr. Riley's valuable discovery of one very great cause of failure—presence of numberless small insects—the grape louse—feeding on the roots. One can tell by an examination with a good lens whether he is favored by a visit from these notables. If he is he will not want to entertain them long. But how to get rid of them is not yet well known. In lawn culture, and in greenhouse pot culture, we have found that lime water will drive out all forms of animal life. A lawn watered with lime water will be covered soon afterwards with myriads of "worms." Before people knew the value of the earth worm, this was how they were destroyed. Perhaps it may "do for" the *Phylloxera*. At any rate something will surely be found out, which while inoccuous to plants, will destroy the life of these minute pests.

VEGETABLE GARDEN.

There is nothing so much relished in early spring as the *first* vegetables—it hardly matters what they are. Many of these things can be forwarded several weeks by the use of glass, and considering how cheaply this may be had, it is a wonder that more hot bed vegetation is not indulged in. Radishes, lettuce, asparagus, strawberries—these in particular can be forwarded by simple frames, without the aid of manure, although where this can be had, of course it is an advantage. An asparagus bed, made in the open ground, of such length and width that any desired frame will cover it, may have rich soil put over it inside the frame, several inches—even six or more, and on this radishes and lettuces be sown. The radishes will be in use before the lettuce is much interfered with, and the asparagus will not find much in the road when it pushes through. For this kind of cold frame it is best o have the glass slope very much to the south. If the frame be made, say two feet above the ground at the back, and six or nine inches in the front, it will be all the better. These cold frames may be much aided by having an evergreen hedge on the cold side. This will make a shelter from the wind, and very much help the earliness. A strawberry bed in the open ground will yield fruit nearly two weeks earlier if a low glass frame be put over the plants. A very little heat tickles the strawberry, and will make it laugh in delicious berryness. Even the planting on a warm rich bank, sloping to the sun will give us fruit considerably in advance of level flat ground.

In getting ready for spring vegetables do not fear to pile on the manure. It is the rank rich growth which gives the agreeable tenderness to them, and without an abundance of manure this cannot be done. Deep soil is also a great element of success. Though we do not favor subsoiling and underdraining for fruit trees, we regard it as very profitable in vegetable growing.

In arranging new vegetable gardens, it is always best to have it in a parallogram, as whether it is to be worked by a plough or the spade, this form saves much time and labor. Those who have not much money to spare, or who are to grow vegetables on a large scale, will want to use the plough, and for this of course a long narrow strip is preferable to a square. For this, one walk through the centre may be enough, and box edgings, or even a narrow grass border may do to line the walk. This is a very good arrangement for a farm garden. Along each side of this central walk may be the currants and gooseberries, and even garden flowers, a row or so of dwarf pears and dwarf apples or strawberries, or other low growing things that would not do to grow in the land which we want to keep under the plough. At each end of the long

narrow strip, space could be left for the plough to turn. The walk perhaps may be all of grass, made level, and kept neatly mown. During the year, as the successive crops are to be put in, the digging fork will easily prepare the ground once ploughed in spring, even in those neater kept gardens where the plough does not enter, the digging fork will be found to do *fourfold* the work of the spade in the same time. But whether the plough or spade be used, and in whatever way the garden be laid out, we should recommend the greatest care to have everything neat and in order. It annoys us considerably when asked to look at some friend's garden, to see things slovenly and untidy. When we hint as much—for we never hesitate to say in as kindly a way as possible, just what we think of such neglect, we are often reminded that it may be all very well for fine people to have fine gardens, and things kept nice, but they have a living to get, and such work "don't pay." We get out of patience with such people. As a general rule it will be found that it takes no more time to do things neatly than untidily. There never was a truer saying than that lazy people take the most trouble. There is no more excuse for a dirty, untidy garden, than for going with one's clothes torn, or flesh unwashed.

COMMUNICATIONS.

NOTES FROM WESTERN PENNSYLVANIA.

BY A. HUIDEKOPER, MEADVILLE, PA.

PROGRESS.

As the evenings grow longer I find it pleasant to bring the "old and new" face to face, by looking over the back numbers of the *Gardener's Monthly*, noting the characteristic diffuseness of young theorists, the compactness of experienced scientists, the change of opinions, and the origin and development of new fruits. One meets with a great many articles passed over hastily at the time of publication, which are interesting now in the light of a wider experience.

Then amid the suggestiveness of its pages I wish to say that one cannot but be impressed with the real character and dignity of the *Monthly*, with its mild but firm criticisms and general spirit of fairness. I am sure its readers must feel and catch its generous inspiration.

WHITE WASHING TREES.

If I had not already obtruded on its pages more than my share of horticultural matter, I would like to suggest that when you admitted you saw nothing but bad taste to be urged against white washing trees that it might have been well to add that though a gray wash of soot and sulphur might destroy lichens and mosses, yet there is this superior advantage in white wash, that it reflects and wards off the sunshine, often detrimental to the trunks of trees alike in summer and winter.

SPECIFIC HEAT IN PLANTS.

There was an article in the volume of 1870, page 47, "on specific heat of plants," by Dr. L. Fritsche, based upon observation in the Canadian forests, in which he attributes the interval of an inch or two between the trunks of trees and the snow, to vegetable heat, upon which I intended at the time to express a doubt, but it escaped me before I did so.

I have often noticed the same phenomena in our western forests, but the cause of it was twofold, and neither the one in that article assigned for it. When the wind is blowing strongly at the time the snow is falling it will drive a current of air around the tree that forces the snow away from it. An other cause is the happening of a bright sunny day in the winter time, when the solar heat reflected from the bark, or absorbed by it melts the snow from about it; I do not wish to controvert the theory that there may be such a thing as some vegetable heat, but take away the agencies I have stated, and you will find snow rest against trees all winter without thawing or separating from their trunks as indicated. I should be glad, as winter is at hand, to have the observations made which the writer of that article in the true spirit of research calls for.

ROOT ATTRACTION TO MANURES.

I had occasion last week to tear down an old vinery and to give away the vines. On digging up the latter we turned up many an old bone,

but failed to find that "historical" tendency of the grape roots to interlace and fill up the interstices with spongioles; on the contrary, the roots had rambled free and far, apparently paying no attention to the bones. I am beginning to think there is something in the doctrine, not to make borders too rich, but to let the vines do something towards "working for a living."

COVERING GRAPE.

I trim and cover my vines always by the first of November, as I think they are better covered than to be exposed to the great changes of late autumnal weather. If there is any objection to this course I fail to discover it.

PRECOCIOUS BEARING OF VINES.

The precocity of bearing (in following season) attributed to early pruning by an English journal some years ago, *Gardener's Monthly*, 1867, page 368, may possibly be owing to the vine, with surplus sap, doing some of its spring work in the fall, may it not, instead of its being an effort of enfeebled vitality.

I would that you were more accessible that I might send you some specimens of fruit; perhaps if I cannot do this the next best thing will be not to trouble you with a surplus of individual speculations.

PECULIARITIES OF FRUIT.

I send in a small box herewith, following specimens:

A medium sized Winter Nelis Pear, to show how early they *will ripen* with us, notwithstanding being wrapped in paper and kept in a moderately cool room.

A few berries of Muscat of Alexandria grapes to show how near they will ripen in a cold grapery without fire heat.

A few berries of Gros Maroc, ripened in cold grapery. I believe Mr. Buist considers this the same as Black Morocco, but catalogues place them as distinct.

[The fruits were very fine. In regard to the ripening of fruits there is evidently something more than *latitude* to be taken into account. Early in October, Major Freas, of the *Germantown Telegraph*, sent us some Glout Morceau pears, which in size and quality, including perfect ripening, rivalled anything California could produce.]

HOT WATER BOILERS.

BY A. P. JONES, FOND DU LAC, WIS.

I have been reading an article on page 336, *Gardener's Monthly*, on heating greenhouses, and having had some experience in both ways of heating mentioned in the said article, would like to ask you some questions and give you some of my experience in both ways of heating by hot water and flues. I would like to know what kind of a boiler your correspondent used; but I think it must have been a very inferior one, that had to have a clear bright fire to keep up a circulation. Now the question as to which is the best and most economical boiler, is of interest to every greenhouse man, more especially new beginners, and I would like to see it more fully discussed in all our agricultural papers. But I do know that he must have had a miserable affair of a boiler if it would not keep up a circulation with as much heat as he says it took to do it, if he could keep his flue warm enough by banking his fire; why did not the boiler do the same? Then again, I ask you how water can absorb heat when it is contained inside of cast iron pipes? would the pipe absorb more heat with water inside than it would if it was heated with hot air to the same degree? Now if the water takes the heat from the coal as you say in the first place, why did it not do so in the second case and not heat the chimney so hot? Then a heating apparatus must be very small, or the heat would not get up and then cool so soon. I have used a flue two winters, and am now using hot water (one of Hitching's Corrugated, No. 15, boilers,) and if your correspondent wishes to hear my experience, I will give it him cheerfully, and am positive that with the coal that he used in one winter, I could heat my house twelve winters. House, 54x15.

[We know nothing of the facts of our former correspondent's failure with his boilers, beyond what was given in his communication. We feel that we can answer for our correspondent as well as for our other readers, that they will be very glad to have Mr. Jones' experience as offered.]

PRIMULA SINENSIS.

BY MR. MANSFIELD MILTON, NORTHEASTON, MASS.

The Chinese Primrose is known and admired by all lovers of flowers. It has been so improved by crossing and cultivation that some of its varieties, especially the double ones, appear distinct species from the original; and its culture is so simple that the occupant of a single room may have his window adorned with its beautiful

flowers, as well as the owner of the best cared for greenhouse.

For spring flowering the seeds should be sown in August, in a seed pan or small box filled with a soil of equal parts of loam, leaf mould and sand, watering well before sowing the seeds, covering them lightly with fine sifted soil, and then cover the top of the pan or box with a piece of wood which retains the moisture, and hastens germination; as soon as they germinate, remove the covering and shade for a few days. When the plants are large enough for handling, put them singly into thumb pots, afterwards shifting into three inch pots, and finally into six inch pots, with a soil composed of loam, leaf mould and well rotted manure.

For winter flowering most people sow the seeds in March; but I practice the following method, deeming it more satisfactory. In October I sow the seeds and treat as previously described, only I keep them in the three inch pots until they flower. I then choose those worth growing, pick off all the flowers, pot them into six inch pots, and towards the end of May put them out doors, plunging them in some place well exposed to the sun, and give a liberal supply of water during summer; by fall they make excellent plants, and commence blooming as soon as taken into the house, continuing so all winter. As double ones cannot be increased by seeds, they have to be propagated by cuttings, treating otherwise the same. I have sown a good many packets of seeds advertised by nurserymen as "saved from the finest double flowers," etc., not expecting to raise any double varieties, but supposing them to be saved from some superior strain I might get some excellent single varieties; I am sorry to say, however, I was always extremely disappointed.

AN ARTICLE ABOUT THE LILIES.

BY P. DUCHARTRE.

Translated from the "Revue Horticole" of July 1st, 1871, for the Gardener's Monthly.

In one of our former numbers we have spoken of an article about the Lilies, published by M. Duchartre, member of the Institute, in the Annals of the Central Society of Horticulture of France. An account, as short as the one given by us or even a much larger one, would be insufficient to do justice to the important work in question, whose modest title, "Observations about the genus Lily," does not indicate its value. It is, one may say, the history of this genus of plants, so interesting in many respects, as complete as it can be made. What increases the importance of this work, but surprises no body, is the impartiality shown by the author; the numerous researches he had to make to give each his proper share of merit of showing the successive increase of species introduced. It is not necessary to add that the scientific part has not been forgotten or that the citations made by Mr. Duchartre are the results of close studies of the best sources. We consider it, therefore, a good thing, and intend to make known this valuable work by increasing its publicity. The genus lily, (Lilium of Tournefort) of the family liliaceæ, from which it has its name, is not only one of the prettiest of the branches of Monocotyledonous plants, but of all the phaenogameous or flowering plants. The species forming it have an elegant port, their flowers combine gracefulness and distinction of form, with a variety of colors; fulness of dimensions, and are nearly always sweet scented. Besides this, the culture of most of them is very simple, on account of their hardiness under the climate of Paris; and the more tender ones require only to be sheltered against frost and dampness during winter. Notwithstanding that all these good qualities are seldom found combined, the lilies have not yet found in gardens the prominent place occupied by other kinds of plants, certainly beautiful, but in total, of less value. Besides the White Lily, (candidum), which is the widest spread of all, the Martagon, bulbiferum and umbellatum, already less common, nothing is found but three or four fine species of Japan origin, while the rest of the genus is only to be met with in some botanical gardens, collections of amateurs, and a small number of large commercial horticultural establishments, such as Messrs. Van Houtte, in Ghent, Belgium; Krelage, in Harlem, Holland; Laurentius, in Leipzig,——— Haage & Schmidt, Erfurt, Prussia, (mem. of translator.) It is hard to explain what is the reason of this so little justified neglect; perhaps we must look for the motives in the slowness by which these plants increase, giving very few offsets of bulbs, and through seeds, very limited resources. In the high prices asked for most of them, by the large number, one is exposed to loss even with an extended experience; the difficulty to get them even at high prices, and mostly in the incontestable fact that they are little or badly known. It is therefore of the first importance to get acquainted with them, and then to make

their acquisition easier than it has been so far. Concerning the necessity to get perfectly acquainted with them, we must collect for that purpose as largely as possible, species and varieties, in order to bring forward large quantities, and in that way to see and make our study on the live plant, to be in the end enabled to publish the result of our observations. Concerning the second point, it is important to make out of this a collection—in the first instance got up for personal gratification and study—a centre of diffusion, which could be reached without too many difficulties by those who would like to follow so laudable an example.

This is the double object acted on by Mr. Max Leichtlin, distinguished horticultural amateur, who is at the head of a large industrial establishment in Carlsruhe, Baden, Germany. Passionate amateur of the lilies, he has tried for several years to get together the species and varieties of this fine genus, has for this end made us one of his commercial correspondents, has set himself n relation not only with foreign countries, but also with travelers and collectors of plants. The botanical gardens of Kew and St. Petersburg have assisted him from their rich stores—even from their latest acquisitions, or given him the means to extend the circle of his acquaintances; besides this, money was no object to him, and it is known that he has spent large amounts to get hold of some lots of species very rare or new in Europe. By these means he has succeeded in bringing together the largest collection of species and varieties of lilies existing anywhere, and is enabled to make a perfect study of these plants; besides this, being very obliging, he helps others in their studies. I, who am myself several times under his obligations, am glad to find this opportunity to express to him herewith my best thanks. This first point gained, Mr. Max Leichtlin has sought to obtain the other. In possession of his marvelous collection, he has come to the decision to let others, who love these beautiful, profit by it, by disposing of a part of the samples he has succeeded in collecting by great perseverence and numberless ways and steps.

We consider this good news for the amateurs. Mr. Max Leichtlin has lately communicated to me the list of species and varieties of lilies he possesses, and on my request, has given the allowance to publish it. In consequence, I profit by his consent, and reproduce the list such as I received it. By perusal, it will be seen how far my correspondent has outrun the most renowned horticultural establishments, and then how largely and splendidly the genus lilies can be represented in the gardens. But as this list is only a show of the actual state of science of horticulture in this regard, I think it would be interesting to accompany it by details, particularly historical, in order to show the gradual expansion of the knowledge of this genus lilium from Linne to our time. By so doing I give a rapid view of the geographical distribution of the species of this genus over the globe, but at the same time I must observe that I have not the pretention to say that my recital is complete. I often take species as they are published, without trying vigorously to investigate its value. A discussion to obtain such a result could only be reached by a more graphic exactitude, for which I feel myself far from being competent.

Herewith is first the list of the collection of Mr. Max Leichtlin, such as I have received it; the historical details of the successive increase of the species of lilies as they became known, will follow afterwards as explanations and complement of these first indications. My correspondent has added to the names of the plants, the following signs of great utility:

The sign (!) placed before a name shows that the decision of the specie is regarded by him as certain. On the contrary, the sign (?) following a name, snows that the determination of the specie or variety should not be regarded as certain. Withal that the name in question may be often found in gardens, it does not guarantee the scientific appellation. The names accompanied by an (N) are new, either for the gardens or entirely. Mr. L. has an (R) behind the names of lilies of particular beauty of form or color Sometimes the name of plants are accompanied by the designation of the locality where they came from. In that case it is to be presumed that a close scrutiny will show in them as many forms or distinct varieties.

List of species and varieties of lilies, representing the collection of Mr Max Leichtlin, in Carlsruhe, Grand Duchy of Baden, Germany:

Lilium abchasicum, ?
" alternans, ! Sieb. and Ve
" aurantiacum, ?
" auratum, ! Lind.
" auratum, ! macranthum R
" avenaceum, ! Fich. R
" Brownii, ! Brow.
" ! bulbiferum L
" ! Buschianum Lodd.

" Buschianum grandiflorum R
" Buschianum nanum
" Californicum, ! Hort. N. R
" callosum, ?
" Camtschatcense, ?
" Canadense, L., of New Hampshire
" Canadense, ! L., of Brentwood
" " L., of Sheffield
" " L., Superbum
" candidum, ! L
" " ! fol. argenteo variegatis
" ! carniolicum Bernh
" Carolinianum, of Chester R
" ! Catesbæi, Walt. R
" ! Chalcedonicum L
" Chalcedonicum, flore luteo
" " majus
" " punctatum, ?
" Columbianum, ? Oregon
" ! concolor Salisb.
" ! cordifolium Thunb
" ! Coridion Sieb. and Ve
" ! croceum, Fuchs (and Chois)
" croceum praecox
" " fl. saturato N. R
" ! davuricum Gawl.
" ! eximium Court.
" ! formosum Ch. Lem.
" formosissimum, ?
" fulgens var. Leichtlinii, ?
" giganteum Wall.
" ! Humboldtii Roesl. N. R
" japonicum Thunb. ?
" Jeffersoni, ?
" latifolium, ?
" ! Leichtlinii D. Hooker
" Leichtlinii splendens, ?
" lilacinum, ?
" ! longiflorum Thunb.
" ! longiflorum de Lin-Kin
" ! " de Lin-Kin praecox
" ! " Takesima
" ! " Wilsonii R
" ! Martagon L
" ! " album
" ! " Catanii, Vis. N. R
" ! " dalmaticum Maly.
" ! " maculatum splendens Leichtlin, N. R
" " Superbum
" " tigrinum tardivum
" " —— hort. varieties
" ! Mazimowizii Regel, N
" ! Monadelphicum Bieb
" ! pardalinum Kellogg, N. R
" ! parvum Kellogg, N
" ! Partheneion Sieb. and Ve
" ! Pennsylvanicum
" peregrinum Will, ?
" ! Philadelphicum L
" ! " andinum Hook, R
" " of Brentwood
" " of Connecticut
" " of Massachusetts
" " of Orange Mountains
" " Wansharoicum
" pinifolium, ?
" polyphyllum Royle, N
" ! pomponium L
" " majus
" " flavum, ?
" " pandanoides, ?
" " var. Hort. Engl.
" ! ponticum C. Koch
" ! pseudo tigrinum Carr.
" ! puberulum Torr., N. R
" ! pubescens Gernh.
" ! pumilum Red
" ! puniceum Sieb. and Ve
" pygmaeum, ?
" Sanguineum, ?
" Sieboldi, ?
" Sinicum Lind., R
" ! Speciosum Thunb.
" ! Speciosum Kaempferi Zucc.
" " punctatum
" " " late maculatum, R
" " atropurpureum R
" " roseum Wilsoni, R
" " rubrum
" " " sanguineum Red. R
" " Schrymakersii R
" " Vestalis
" ! Spectabile Link Fisch.
" " bicolor. ?
" " maculatum, ?
" ! Superbum L
" " from Connecticut
" " " South Carolina R
" ! tenuifolium Fisch.
" ! testaceum Lindl.
" ! Thunbergianum Roem & Schult
" " atrosanguineum
" " aurantiacum
" " aureum
" " flora pleno R. N
" " marmoratum grandiflorum

" " Scarlatinum Leichtlin, N. R
" ! Thomsonianum Lindl.
" ! tigrinum Gawl.
" ! " Fortunii
" " erectum
" " foliis variegatis N
" " flora pleno R. N
" " Splendens Lichtl. R
" tricolor, ?
" tubiflorum Wight R
" ! venustum Hort. borol
" ! Wallichianum Roem & Schult
" ! Washingtonianum Kellogg N. R
" ! Wilsoni Hort. N. R

Lilies still without Name.

No. 3, 4, 15, 16, 17, 18, 20, 200, 201, 203 from California.
No. 131, 164, 165, 166, received from the botanical gardens of Kew.
No. 163, from Wisconsin.
No. 187, received from the botanical garden in Berlin.
No. 23, 132, 134, received from the botanical garden in St. Petersburg.
Martagon from Japan N. R.

Successive Increase of the Genus Lilies from Linne to our time.

In the third edition of his "Species Plantarum," dated 1762, Linne indicated nine species, composing the whole genus lilium, which species are found again without change, even in the order in which they are enumerated, in his "Systema Vegetabilium," dated 1774, bearing the name of F. A. Murray as its author, but to the making up of which book the great Swedish Naturalist is known to have contributed.

Here are the names of the nine species, with the indication of the countries given as their home in the "Species Plantarum:"

1. Lilium candidum, of Palestine, Syria and Cadiz, with two varieties.
2. Lilium bulbiferum, of Italy, Siberia and Austria, with seven varieties.
3. Lilium pomponium, of the Pyrenees and Siberia, with two varieties.
4. Lilium Chalcedonicum, of Persia and Paltina, in Carniola, with two varieties.
5. Lilium Superbum, of Middle America.
6. Lilium Martagon, of Hungary, Switzerland, Siberia and Leipzig.
7. Lilium Canadense, of Canada.
   Lilium philadelphicum, Canada.
9. Lilium Kamtschatcens, Canada and Kamtschatka.

Concerning the characters by which Linne distinguished these nine species, the four last ones, most of which have verticillate (forming rings) leaves, may be separated from the five first ones, whose leaves are always scattered, that is alternate or better in a spiral form; two of them have bell shaped, upright flowers, that is, wide open and not rolled up on the outside; these are L. candidum and bulbiferum. The flowers of the others are pending or reflected, rolled up on the outside, or revolute; these are L. pomponium, L. chaledonicum and L. superbum. From the two first ones the L. candidum is easily to be recognized, the flowers being of so pure a white, that it has become proverbial and glossy on the inside, while the L. bulbiferum distinguishes itself through its deep orange colored flowers, the inside face of which is covered with numerous little papillas or prominences. Besides this developes in the axles of the upper leaves, as the name indicates, very small bulblets, which might serve for multiplying. Between the three species with pending or recurved flowers, the American one, the L. Superba, is a large, fine plant, whose flowers are deprived of the inside prominences, are red, passing to yellow, and marked by numerous brown-black dots; between the other two whose flowers have the same figure, and can vary in color from the most deep red to yellow. Linne makes the distinction that the one, L. pomponium, has lineal leaves, that is, very narrow, sharp, hollowed out on the upper face, in the form of a prism of three angles; while on the other, L. chalcedonicum, the leaves are wider, lanceolate, nearly covering the whole stem. Between the four species, most of which have verticillate (forming rings) leaves, the one is particularly remarkable by its reflected flowers, most of purplish color, but often also found of other shades, whose calyx is rolled up to the outside turban shape, to such an extent that it is commonly called the Turban lily, this is L. Martagon. Another one, the L. philadelphicum, is easily distinguished on account of its upright flowers of orange red color, turning to yellow in the centre, where are many purplish black dots; have the b. pieces (?) slightly turned inside, and ending in a long spur; the flowers more or less reflected, campanulated and slightly turned up of orange yellow color, the inside marked with many purplish black spots of the L. canadense, are sufficient to distinguish this specie from L.

Camtschatcense, with upright, small, campanulated, bell-shaped flowers of dark purplish red color, getting lighter and turning to yellow on the base, where numerous little black spots are.

As it is seen by the indications which Linne gives of the nativity of his nine species, five of his plants are found all over Middle Europe, and the others natives of North America. It follows that the eastern part of Asia and particularly Japan, which has contributed since much more than any other country to the increase of the species of this genus of bulbous rooted plants, were entirely neglected by the immortal botanist, with all that is his. "Amaenitates academicae, (5d fasc., pp. 870–872) published in 1712, Kaempfer had mentioned several lilies belonging to that part of Asia, particularly those which later received the names L. cordifolium, speciosum and tigrinum. But the Japanese species very soon dispersed the dark in which Linne had left them. Thunberg, who in his "Flora Japonica," published in 1784, was only pre-occupied by the one idea to bring them all under the European species, very soon found out how much forced were the imitations so made by him. In a memorandum entitled "Botanical observations on the Flora Japonica," which he inserted in the second volume of Transactions of Linnæan Society of London, he created, but only characterized them briefly:

1. The L. cordifolum, (p. 332) the Sjire, Sjiroi and Osjirsi of the Japanese and Kaempfer, which previously figured under the name of Hemericallis cordata, Thunb., in the flora Japonica (p. 143.)

2. The L Speciosum, (p. 332), the Kesbiako or Konokko Juri of the Japanese of Kaempfer, which was named L. superbum in his first work, (p. 134).

3. The L. longiflorum, (p. 333), named by him L. candidum in the Flora Japonica, (p. 133), or the Tiakko of Kaempfer.

4. The L. lancifolium, (p. 333), whose name was unfortunately transferred by all our horticulturists to L. speciosum, and thereby occasioned a great confusion; he had it in his flora the L. bulbiferum. He is wrong to attach as synonym, the Kenton or Oni Furi, of Kaempfer, (Amoen. ex. p. 871) which can only be, it seems to me, a species described later by Gawler, in the Botanical Magazine, under the name of L. tigrinum.

5. The L. maculatum, (p. 334), which he mixed up in his "Flora Japonica," (p. 135), with L. canadense.

Thunberg, later on, took up with more care, the same subject, and made the description of the Japanese lilies a special writing, which appeared in the 1st volume of the Memoires de l'academie imperiale de St. Petersburg, (1811, under the title of "Examen Liliorum Japonicorum," (pp. 200–208, pl. 3, 4, 5.) In this new work, which comprises eight species, he speaks more completely of the five species already mentioned in his first work, gives very badly executed figures of three of them, (L. lancifolium L. longiflorum, L. maculatum), and then describes or figures two new ones, under the the names of L. elegans, (p. 203, pl. iii. fig. 2), and japonicum, (p. 205, pl. v. fig. 2). Persisting nevertheless in his wrong tendency to refind the European plants in Japan, he brings in this work under the name of L. pomponium, L., the lily which Siebold and Zuccarini in their Flora Japonica, has described and figured 1035, as their L. callosum.

ORCHIDEÆ No. 8.

BY MR. JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

DENDROBIUM PULCHERIMUM PERPUREUM.

This pretty little plant is a native of Sylhet, and like all the fine species from that district, requires a brisk heat during the growing season, with abundance of moisture. Unlike most dendrobiums which make shoots from two to eight feet long, this species seldom exceeds that number of inches, but the shoots on a well grown plant will be covered with flowers the entire length, and as it annually makes abundance of shoots, it should be a mass of bloom, the sepals and petals are white, edged with green, with a bright orange blotch in centre of lip, and beautifully fringed; the flowers last in perfection for two weeks.

This is a very easy plant to grow, and may be managed in a warm greenhouse, for it makes its growth during our hot weather and is at rest in the coldest season of the year, when it may be kept day or night—temperature of 50° will not hurt it.

This plant should be grown in a round wire basket, and the shoots pressed round the outside, when they will root into the spagnum and rough peat with which the basket should be filled, and in a short time make a perfect ball. This is the best plan for amateurs, as the plant will not be so liable to suffer from neglect of wa-

tering in the growing season as when grown on a block of wood, which is the system we adopt. I select a hard block of oak and fasten the plant to it by copper wire, with a little spagnum moss, when it at once roots on to the wood and requires no more attention, excepting abundance of water, with slight shade during the growing season, and to be kept dry from November until it shows flowers about February, when it requires occasional watering and plenty of light until the flowers expand. It being a deciduous species, will lose all its leaves previous to flowering. I would strongly recommend this species to all lovers of Orchideæ—it is very pretty, easily grown, and the plants are not expensive.

ERRORS EXCEPTED.

BY EDWARD H. BEEBE, GENEVA, ILLS.

I find copied in the November number of the *Gardener's Monthly*, Prof. Asa Gray's address on the Distribution of Plants, and the same error, as it appeared in the daily papers of Dubuque in August last. It was then said, and now repeated, that "a relative of this is *Podophyllum*, our mandrake, a common inhabitant of the Atlantic United States, *but found nowhere else.*" "Somebody has blundered." Not the *Gardener's Monthly*—you have followed copy.

Prof. Wood, in his Manual, says of Podophyllum, "in woods and fields common in Middle and Western States; *rare in New England.*" Prof. Asa Gray says in his Manual, (5th edition) page 54, "found in Ohio by W. C. Hampton, with two carpels." I can confirm both of these statements, for we know it to be common in the Western States. Prof. Gray says it is found in Ohio, consequently it is found somewhere else besides the Atlantic States, and the statement above is *somebody's error.* Whose is it? In my paper in the same number, page 331, the scourge of the apple tree bark louse is named Chalcis "Aspidiatus Conchiformis." I would state that this was the name given to the stranger before it was scientifically christened, Dr. W. Le Barron now calls it Chalcis Aphelinus mytilaspidis. (We outsiders that are not very buggy call it the bark louse chalcis for short.)

A full scientific description is given of the insect by Dr. Le Barron, on page 360, vol. 2, American Entomologist. I would state that in 1871, I made the attempt to colonize the Chalcis. Doctor Le Barron furnished me with a number of twigs taken from trees in Kane County, and supposed to be infested with Chalcis larvae. The twigs were taken to Galena, and tied upon trees in three different orchards, the trees of which had been carefully examined, and not a trace of a chalcis could be found; the nearest point at which they had been observed was in Lee County, eighty miles south of Galena. In July last, fifteen months after the twigs had been placed upon the trees, Dr. Le Barron and myself discovered the chalcis mark upon them—a few, only got enough to prove that the chalcis was around. We could find no marks except upon the trees on which the twigs from Kane County had been tied. The presumption is that the experiment of colonizing is a success. But we prefer waiting until another year, expecting that they will have increased sufficiently to enable us to find the insect instead of his mark, and the absence of the chalcis between the points where it is now known to exist, some eighty miles, will go to establish *the fact* that it can be colonized and the bark louse cleaned out.

[Our correspondent fails to perceive that when Dr. Gray uses the term "Atlantic United States," it is in contradistinction to States on the Pacific coast. There are, however, several errors of a typographical nature in Dr. Gray's address as given in our columns – not ours, but errors made in the copy we used. We had not at the time one from Dr. Gray himself, as we since have. Some of the errors we saw and corrected, but others escaped. At page 361, line 15, "translated" should read tabulated; next line, "I ever" should be Heer; 364, line 5, "print" should be fruit; line 15 from bottom should be totality not "vitality;" line 15 from end of the article, "the" should be this. There are other mistakes of a similar character, but on the whole we have no doubt any intelligent mind will see them, and that no great evil will follow. We supposed that by following printed copy from first class authority, we had the best security against error, but the best of us can fall, it seems.]

THE CENTENNIAL WORLD'S FAIR.

BY W. L. AKERS, JOHNSTOWN, PA.

What shall we do for the Centennial? Only three more years for action, and yet so much to be done! Doubtless many of our leading horticulturists are *planning* and perhaps *preparing* for the great display. But is isolated effort the best? or could we, by organization and concert of action accomplish greater results?

The world has never witnessed such an event

as this, it is altogether new and distinct in the history of mankind, and must exert a wonderful power in melting down national asperities, and bringing all the *people* of the world nearer to each other in one great brotherhood. In view of this great international feature of the exhibition, it has been suggested that gardeners and nurserymen should unite in an effort to produce *a grand display of all the leading wood plants of the world.* But is it possible? who shall say no? The gardeners and nurserymen of this country, *united* and aided by their correspondents abroad, would be a wonderful power. Think of such a meeting! All the oaks of the world brought into one great family, and the pines! What a glorious wondrous display they would make! The old historic trees that have been connected with the history of man from the days of his creation, would salute those of the western continent, hoary with the thousands of years of solitude they have witnessed. The idea is so grand and so beautiful that practicability alone comes in the way, and if no financial crisis should intervene, such an *approach* towards completeness could be made as would astonish even those who are aware of the nature of the task. It is sincerely hoped that the project may not be considered altogether visionary, but may have that consideration and discussion which it is entitled to.

[This timely letter demands serious attention, and our columns shall be cheerfully open to any suggestions. Our impression is that horticulture has been wholly ignored by the general committee, at least we have watched the proceedings very closely, and if a committee on horticulture has been appointed, their names have strangely escaped us, and we shall be glad to be set right by those who have the chance to know.]

INFLUENCE OF EXTREME COLD ON THE CURCULIO.

BY T. T. SOUTHWICK, DANSVILLE, N. Y.

In seeking for some useful lesson taught by the last winter, it has occurred to me that something possibly could be learned in reference to the curculio and his works. The winter was marked for long continued cold and almost entire absence of snow. The soil froze to a greater depth and more solid than for years.

The plum crop—I speak for this section of the State—was the largest known for years. The last good crop previous to the one referred to was after a winter quite similar to the past winter. The trees seldom or never fail to bloom freely and set well, but the little "turk" marks them for destruction. The past summer I hardly saw the mark of the curculio on plum or other fruit.

The theory I draw from the facts is, that during winter when the soil is much exposed to long contined freezing, the frost penetrates to a depth, and with *sufficient intensity* to reach and destroy the pupa. In the foregoing facts, and they are true, and they are, I think, the lesson learned, would be to freeze the curculio out. On the approach of cold weather to clear the ground under and about the fruit trees from snow, and allow the frost to penetrate the soil as deep as may be. I think no harm would result to the trees, as they do not suffer when the soil is naturally exposed.

I do not make any positive assertion that there is any positive connection between a cold and snowless winter and a short crop of "bugs" the season following, but I think there is. What do you think?

[We are glad that Mr. Southwick has introduced this matter, as it suggests a couple of questions that we believe have not been settled by that positive evidence which which is required to establish a scientific truth.

First, does the curculio hybernate in the ground,—and in what state or condition? As we understand, the weight of evidence is against the earth shelter of the curculio; but entomology is such a vast study, that only those engaged in its special pursuit are competent to decide on these disputed questions, and we should be glad to have the latest exposition of well ascertained facts.

Secondly, will cold destroy hybernating insects in any of their forms? We know it is the general impression that it will; but some assert it will not. "It is said" fishes have been thoroughly encased in ice, and kept so for some time, but that the vital principle has been sufficient to keep up the animal heat and to keep out the frost. Of course if they would lose their heat and become thoroughly frozen, they would die, but it is said the vital principle is sufficient to resist the freezing and keep things going till the warm weather returns.

What we would like to know is, can "It is said" be relied on? who is he? where did he try his experiments? and on what did he try them?

We have found, unfortunately, that even eminent scientific men are very often not to be fully

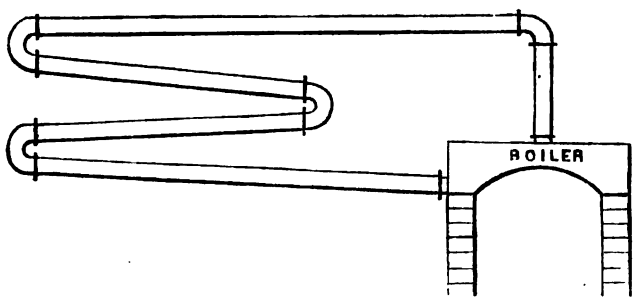
trusted in their facts. They adopt too readily a part from other people to add to their own,—when even a very full personal observation, like a telegraph message, will bear repeating before one can be sure it is true. It is a pleasure to note that the area of careful original observers is widening. We should like to hear from Professor Riley on these matters. Few entomologists have more fully gained the public confidence than he.]

HOT WATER HEATING.

BY W. SAUNDERS, WASHINGTON, D. C.

Referring to your editorial, page 336, I would remark that the heating of small greenhouses is sometimes a perplexing question, especially where the idea prevails that the old fashioned flue is obsolete. The first cost of a hot water apparatus is a large item when brought in contrast with the expense of building a moderate sized house, without considering the necessary waste of fuel connected with boilers when used as exclusive heating mediums.

The most economical mode of heating a glass structure of say 80 feet in length by 24 feet in breadth, is by a combination of hot water and the hot air flue. A small boiler set so as to form a cover to the furnace, is perhaps the most complete arrangement of this kind; such boilers have frequently been advertised in your columns. The furnace should be placed near the centre the length of the house, one end of the building being warmed by pipes attached to the boiler, and the other end heated by the flue. The piping may be increased at the end farthest from the furnace as shown in the sketch, and in all cases of laying hot water pipes, the principle of a constant descent from the boiler, or a high point as near to it as practicable, should be strictly adhered to.



In localities where a boiler proper cannot readily be procured, a coil of piping placed in the furnace will answer as good a purpose, or a simple bent pipe as figured at page 215, volume 7th, *Gardener's Monthly*, which can be cheaply made at any plumbing establishment, will heat 200 feet of piping, provided the pipes are laid so as to form a triangle, as shown at page 263 of your September number.

EDITORIAL NOTES.

FOREIGN.

Death of Lady Hooker.—This distinguished lady who assisted her husband, the late Sir W. Hooker, in his scientific pursuits, died recently at Norwich, England, aged 75. Mrs. Lindley, widow of the distinguished Professor Lindley, is still living in the same town.

Government Aid to Science.—In striking contrast to the action of some of our State Governments is the liberality which some of the benighted governments of the old world show to science. They seem to act on the theory that the object of governments should be to do for the people collectively what the people cannot do for themselves in an individual capacity. In Pennsylvania, Prof. Porter, at *his own expense*, gets together a magnificent flora of the State, but unless he consents to let it go as government "pap" to feed a public printer, the State will give nothing towards its publication. On the other hand, such an old fashioned government as Spain has for a number of years past granted a large sum of money annually to Jose Triana to enable him to publish the flora of Columbia. The result is one of the most beautiful and valuable works in the world. It was expected to be finished by this time, but not being, the government has extended the grant to five years more to enable him to do it. Our national government is a little better than some of the States. It as trustee of the Smithsonian Institution, did undertake to issue a valuable work on the lower order of water plants by Dr. Horatio Wood. Some thousands of dollars have been very well expended on it, but wanting some thirty dollars more than has been appropriated, it must wait for another year.

New Onion—The Queen—The English papers say that this is an extra early kind. "If sown in February it will produce onions from one to two inches in diameter in four months." It is also said to be a good keeper.

Expenditure of Force by Plants in Overcoming Gravitation.—Under this head the editor of this magazine contributed a paper to the Academy of Natural Sciences of Philadelphia, showing how much vital force was spent by plants in their erect growth, in opposition to the gravitating power, which drew them towards the earth.

A practical use has been made of this law by a French fruit grower, which is thus described in a French magazine:

"An amateur horticulturist noticed that whenever a pear produced upon his *Espaliers* (trees trained against a wall) rested upon a branch, its size was always larger than those which were not thus sustained. He surmised that this difference was caused by the weight of a fruit, when arrived at a certain size, causing the sap vessels of the stem to be compressed, thereby preventing a large flow of sap, and consequently as full expansion as when a fruit was placed in a position favorable to receive all the nourishing sap.

Several experiments confirmed this opinion. A pear grown upon a branch and not resting upon a support measured on the 18th of September nine inches and one-sixteenth; another measured at the same date eight inches and a quarter. This was supported by a piece of board, allowing it a rest. On the 30th of September following, both pears were culled. The first had increased but one thirty-second of an inch; the other gained one-quarter of an inch in measure."

The Rustic Orchard House.—This is the name of a new idea in fruit culture under glass, originated in England. The house is simply a double pitch glass structure, as in all greenhouses, but the sides—about six feet high—are lattice work. The fruit is said to be of much better quality than when wholly enclosed in an ordinary house.

Influence of Strange Pollen on the Form of Fruit.—A few years ago we believed that pollen did not affect the fruit, but only the progeny of that fruit; but facts that the editor and some of our correspondents have observed and noted, have gradually led us to a contrary opinion. We recently offered a few thoughts on this very subject. The *Gardener's Chronicle* has now the following confirmation:

"In reference to the influence of strange pollen on the form of fruit, some interesting experiments are recorded by Maximowicz. The species experimented on were L. davuricum and L. bulbiferum, and the plants were kept in a sun-warmed apartment. The pollen of each species of Lily was applied to the stigmas of the other species, the process being repeated upon several individual plants. The result was that the capsules borne by the several plants were found to have the form characteristic of the pollen parent; while the form of the seeds was intermediate between that of those of the two parents. The subject was incidentally alluded to at one of the meetings of the Scientific Committee some time since."

Unity of Origin of Deodar and Cedar of Lebanon.—Dr. Brandis, in a paper read before the British Association for the Advancement of Science, read a paper in which he takes ground that the Cedars of the Himalayas, of Lebanon, of Taurus and of Atlantis, have all sprang from one original form, and are therefore but fixed varieties one of another.

A Sensitive Oxalis.—The late Dr. Welwitsch, of the *Gardener's Chronicle*, tells us he discovered in Angola, an *Oxalis* so sensitive that its leaves would close by a mere foot-fall near it. But the leaf stalk does not fall as in the common sensitive plant, but closes in over the crown—going up instead of going down.

Portrait of Professor Gray.—The London *Gardener's Chronicle* has an excellent likeness of this distinguished Botanist, with a brief account of his life and great services to science:

"Dr. Gray was born at Paris, Oneida county, N. Y., in 1810; graduated in medicine in 1831, and became Professor of Natural History in the Harvard University, and director of the Botanic Garden at Cambridge (Mass.)—offices he still holds. In many of his works he has been associated with the veteran Dr. Torrey, in, others with Dr. Engelman, of St. Louis, and as a university Professor he is the colleague and associate of such men as Longfellow, Holmes, Agassiz, ond others. who have given Boston a world-wide celebrity. Dr. Gray is a foreign member of our Royal and Linnean Societies.

How to Keep Birds from Strawberry Beds.—An English correspondent of the *Gardener's Chronicle* has his plants growing in long narrow beds. He has a post at each end, a wire stretched to each, a ring on the wire, a string or light rope on the ring, and a cat on the other end of the rope. Pussy can walk up and down the bed but nowhere else. The birds decrease in numbers, and pussy likes the job.

Succession of Forest Trees.—It appears America is not the only place where one set of trees succeed another. When the chestnut trees of Mount Cenis are cut down, Larches follow, but the people of the old world do not look on it as anything mysterious, or that the seeds of the larch have been there since the creation of the world.

Aubergines.—Under this name goes our long purple egg plant in France, where it seems to be very popular. Our English friends are debating whether to eat it or not, "so many of the Solanaceæ being poisonous," but Mr. Forsyth in the

the *Gardener's Chronicle*, assures them that thousands have ate egg plants for the past two hundred years without being poisoned.

Retinospora obtusa.—This beautiful evergreen, which has been found so thoroughly hardy in the United States, is thus referred to by a correspondent of *London Gardener's Chronicle:*

"Said to grow in Japan to the height of from 70 to 100 eet, and from 3 to 5 feet in diameter. In this country it is already widely spread, thriving with less or more luxuriance wherever planted, if in soil at all good, and in a moderately sheltered situation. It appears to be quite as hardy as most of our ordinary shrubs, and where well established grows nearly as freely as does the Cupressus Lawsoniana, forming an important addition to our finest lawn plants. Its foliage when in fine health is almost of an emerald green, its branches are spreading, the lateral ones, in two rows, spreading out almost like a fan. Mr. Gordon, in the *Pinetum* says, 'It constitutes a large portion of the forests in the mountains on the Island oi Nippon, in Japan. Its timber is white, fine grained, compact, and acquires, when worked, the brilliancy of silk, and in consequence of its valuable properties the Japanese dedicate it to the God of the Sun; and construct chapels and small temples out of its timber, for divine purposes.' This beautiful tree is called Hennak by the Chinese, and Fa-si-no-ki (Tree of the Sun) by the Japanese.

New Canterbury Bell.—Almost everybody knows the Canterbury Bell. Large blue or white flowers, and covering a pretty large plant with large blossoms, there are not many new plants showier than this old fashioned thing. Lately this has been "improved." At the base of the bell shaped corolla there is usually a green five cleft calyx; but in this new race the green calyx segments have been developed into broad petal-like processes of the same color as the corolla, giving the plant a very unique and grand appearance. But our readers must not look for it in the seed catalogues as Canterbury Bell, This is too vulgar, but they will see it as *Campanula medium calycanthema alba.*

Weeping Sequoia.—So far as we know the mammoth tree of California does not succeed except in a very few favored locations, such as at Ellwanger and Barry's, at Rochester, New York. But it has found itself a home in England, except in a few places, where it seems liable to the attacks of a fungus, similar or the same to the one which takes it off in the Eastern United States. In England they are even getting "improved" varieties, a Weeping Sequoia being among the latest announcements.

Improved Varieties of Strawberry.—We think it hard that we cannot get out a new strawberry that will hold; but with every new attempt still have to fall back on Wilson's Albany and such old kinds. There may be a sort of satisfaction in the feeling that they are no better off in the Old World. In a recent paper by one of their most distinguished strawberryists, we find the most popular sorts still the very old ones. Elton, Black Prince, Alice Maud and Vicomtesse Hericart de Thury are called the best. Frogmore Pine and Eleanor, two old sorts, also get much praise.

EDITORIAL.

PUBLIC PARKS.

It is to be supposed that the time may come when the average public mind will be ruled by common sense. We all know how it is now. Though we know we shall be robbed,—though we are absolutely certain our money will be wasted,—we must go with the party whichever it may be, and all the offices in all the details must be filled with party men, rather than with capable men, in order that we may be sure of the party triumph next time. It is too much to hope that party shall not rule. Indeed it may be desirable that it shall rule,—but at least common sense should dictate that the details of every day life should be removed far from its influence. *Then* we may have public parks and public grounds that will be a credit to us, and cost no more than the figures honestly show. In the meanwhile we may help the good time coming by studying a lesson from what we have done.

The New York Central Park is the earliest of these great efforts. The idea originated, we believe, with Downing and Mayor Kingsland, chiefly. It took form, and plans were advertised for. Over thirty plans were submitted, and the one by Olmstead and Vaux selected. The work was commenced in 1856, under a commission nominated by the Legislature, and independent of the city government. To the astonishment of every one familiar with our "system," party politics was kept out of this business till 1870. The work, under the original designers, was

honestly and creditably done. Whatever may have been the opinions of men educated in the various *schools* of landscape gardening, there was no dispute about the work as a whole. It was universally conceded to be a magnificent piece of work, and one of the chief glories of the State of New York.

All who have had experience in even local landscape gardening know what it costs. A few thousand dollars soon go when we haul a little dirt here and cut it down there,—build now this little bridge, and now set there the little fountain,—and when we come to make the good and substantial road—but here we may as well drop the veil. But the Central Park Commissioners carried on this tremendous work for fourteen years, at a cost of but $6,000,000—a large sum to be sure, but really very little in proportion to the magnitude of the design.

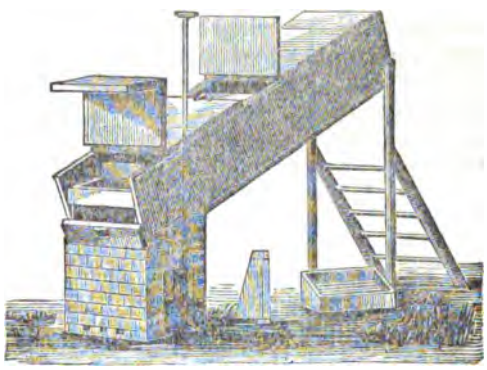
But in 1870 the long feared event came. The local politicians got hold of it, and ruin ran "like mad" We need not particularize here, for the shame is already published world wide. How bronze statues were painted white; how the restored fossil skeletons of ante-diluvian monsters were smashed to atoms; how museum buildings were ransacked and wrecked; how cow yards and other common place objects were erected where the most refined elegancies of art previously found a home; how trees generously nature gifted, were trimmed to "bare poles," and gorgeous masses of ten year growing shrubbery cut away to let in the "light and the air," as well as to pay by a few days work for the votes hired on election day; all this and more, is it not too well known? And to crown the whole, *two millions and a quarter* of dollars spent in eighteen months!

Happily this is ended now. The men who conceived this noble work and carried it on so ably and so honestly for ten years, are mostly back to their posts. But how loag will it be? There is not a New Yorker, poor or rich, but who is proud of the Central Park. No one seems to begrudge paying for it. Nothing is too dear for this whistle. But the number of those who know what is true art, is but as a drop in the ocean to those who do not. For every one who would select a portrait of Washington, by Peale, there are a thousand who would rather admire the "Father of his country" on some swinging tavern sign or hackney wagon; and it is these who form the average man *which* rules.

We need pursue no further the moral to which these reflections point. Those who have at heart the elevation of the masses, by furnishing them true art for their education instead of vile counterfeits, have to guard their cherished object against the half educated prejudices which culminate in a "popular vote." Wherever this can be successfully done, we hope for good public parks,—where it is not, we are in constant danger of the repetition of the vandalism and iconoclasm of the eighteen months of popular rule in Central Park.

FRUIT-DRYING.

No subject has a greater interest to horticulturists, than what to do with their surplus fruits; and of all methods which suggest themselves, fruit-drying is the most practicable. But the old system of sun-drying is too slow, and, for the matter of that, too dirty; while machine-drying has been too cumbrous and too expensive. We are glad, therefore, to give prominence to a neat little affair, which all may use, and which is represented in the cut given herewith.



This machine is the offspring of the fertile brain and the patent right of Dr. B. L. Ryder, of the Horticultural and Health Institute of Chambersburg, who has already contributed to our pages many useful hints to his gardening brethren. The fruit which we have seen dried by the process, were as near perfection as we think dried fruit can be. All kinds of fruit or vegetables can be dried in a few minutes. We do not go into particulars here, as those who wish for further details will consult the advertisements.

EDITORIAL NOTES.

DOMESTIC.

Nailing Grape Vines to Stakes.--A correspondent of the *Ohio Farmer* says he trains his vines

to the top of the seven feet stakes, and then *nails* the branches to the top, thus saving all tying forever afterwards. This is, no doubt, an excellent idea, and it is a wonder no one has thought of it before. He says he has applied for a patent, and if granted, people shall be allowed to drive the nails "on most reasonable terms."

Pears in Canada.—We find in the *Canada Farmer* the address of the President of the Fruit Growers' Association of Ontario, in which he says the Flemish Beauty is there preferable to the Seckel; Louise Bonne de Jersey is next in value. Gray Doyenne is preferred to Sheldon; Glout Morceau "is A No. 1;" Beurre Diel receives high praise, often so large and good as to be mistaken for Duchesse. Elliott's Early he thinks will supersede Doyenne d'Ete and Madeleine as an early pear. It was raised by Judge Elliott, of Amherstburg, Michigan. Onondago thrives superbly on clay soils. Easter Beurre is a noble pear; Duchesse d'Angouleme is uncertain, but excellent when well grown; Bartlett is everybody's favorite; Brandywine is one of the best of pears, and Beurre d'Anjou looking up; Winter Nelis is a superb pear; Belle Lucrative is a splendid pear, but Fondante de Maines and Fondante de Comice are "splendider;" Lawrence the best pear for winter use; Vicar, uncertain; Beurre d'Amanilis "too little known." Other pears named as doing very well are B. Superfin, B. Bosc, B. Langelier, Delices de Hardenpont, Ananas d'Ete, B. de Noel, (as a market variety, ripening at Christmas,) St. Ghislain, Kingsessing, Clapp's Favorite, Josephine de Malines, Baron de Mello, Graslin, Triomphe de Jodoigne; others are named, but these seem the most highly praised.

The Gum Trees of Australia.—Most of our readers who have followed Mr. Harding's interesting account of Australian vegetation, will remember the gigantic *Eucalyptus* or gum trees, little inferior to the great Mammoth of California. They are being freely introduced into those countries where they will thrive. Immense numbers are being planted in Spain by the railroad companies, and in our own country California leads in extensive plantations of them. We do not hear of them in the Southern States, where it would do as well as in its own country.

White Grapes.—Dr. Parker writes to the *Horticulturist* that at Ithaca, New York, the Maxatawney did not ripen when first introduced, before October 25th, now old vines mature the middle of October. He thinks highly of it. He names Cuyahoga, Croton, Lydia and Rebecca as all varying in quality with soil and season,—the last named seems to be his favorite next to Maxatawney.

Horticulture at the Michigan Agricultural College.—Under the wise management of Prof. Beal, horticulture progresses here. Mr. Adam Oliver, an experienced landscape gardener, has beed engaged to lay out the grounds. Mr. Whittel is highly spoken of for his abilities as gardener; an arboretum has been begun, and the fruit departments are in a prosperous condition.

Apples for Southern Illinois.—At the November meeting of the Alton Horticultural Society. Dr. Long said the Ben Davis is now the first apple in esteem. He also praised Early Harvest, Red Astrachan, Maiden s Blush, Dominie, Newtown Pippin, Gilpin, Pennock, Pryor's Red, Wincsap; would not plant Janet because the markets are glutted with them. Mr. Redaker liked Janet because it bloomed after the late frosts, and he was thus sure of a late crop—valued Smith's Cider. Dr. Hull valued Lady apple and Newtown Pippin. Remarking on the above, the editors of *Prairie Farmer* say they would add Primate. Chenango Strawberry, Benoni, Limber Twig and Carolina Red June.

Number of Varieties.—The *Country Gentleman* says:

> There are more than a thousand named and described varieties of the pear raised in this country, in the gardens of pomologists and others, and about 2500 varieties of the apple. But few practical cultivators will want more than a dozen of each.

This is true enough, but what troubles nurserymen, who have to keep on hand what the public want, is to know which is that dozen which the few practical cultivators want?

Culture of Peach Trees.—At a recent meeting of the New York Farmer's Club, Dr. Trimble said that Thomas Meehan recommended a man in southern New Jersey to put his peach orchard in grass. He took the advice. The trees grew worse and worse, and the man *had to move away to keep himself from ruin.* Poor fellow! Mr. R. J. Dodge very properly replied that Mr. Meehan did not merely recommend keeping trees in grass, but he also insisted that they should be *properly fed* at the same time. When this poor broken down peach grower reads Mr. Dodge's explanation, he will probably joyfully return and try it again. It is generally your half idea people that give the most trouble. An

acquaintance of ours recently went to a lecture by Charles G. Ames, the distinguished orator. The speaker was discoursing, we suppose, on love matters, for he is reported to have said that "it was a mistake for couples to cease courting with marriage." Our informant thought it a horrible doctrine to teach that "married people should go courting *other people* through life." She was astonished at our suggestion that possibly married folks could court each other as well as other people! We suppose there always will be some people who will never understand the difference between grass orchards starved and neglected, and grass orchards kept up in fertility. For such we have hardly the charity our friend Dodge exhibits. We are generally disposed to let them "run away or burst," whichever they please.

Grapes which Mildew.—In what is called the science of pomology, we have a difficult task. The field is full of writers and thinkers who seem unable to look beyond their own gate posts. Here is a long article before us in which the writer says the Croton and Senasqua is good for nothing, and the Eumelan mildews worse than any grape he has. The Martha is not only worthless, but is positively a nuisance, the fruit having a poor, bad flavor; but the Delaware, Creveling, and so forth, do not mildew; these are the kinds for people to plant.

We have been careful to keep such stuff out of our magazine. We suppose that by this time everybody knows that all grapes are as liable to mildew and other diseases as are all men to cholera or smallpox,—and that a grape usually reputable will sometimes disgrace itself by bad flavor, as that a tolerably good Christian may once in a while have a very bad temper. This kind of pomology has no charms for us. The mere fact that some varieties do well and others do not, or how they vary with varying seasons, are well enough as *facts;* they lead us to form ideas of general character. But to imagine our little experiences in a season or two, should be a general rule for all others and for all time, is poor pomological science.

Preparing Ground for Fruit Trees.—In one of our issues last year, we remarked:

> Some talk, in preparing an orchard, about making "one large hole" for all the trees. This seems witty, but it is an expense which very few orchards will ever repay. Water is likely to stand in the deep holes we recommend: but in such cases we would, rather than go to the expense of subsoiling the whole orchard, or underdraining, plant higher than they grew before—higher than the surrounding soil, mounding the earth, as it were, above the level. No water will ever stand here; and the money spent in making "one big hole" of the whole orchard, or in underdraining, we would spend in annual surface dressing the ground.

Commenting on this the *Western Rural*, one of our most intelligent and respected western contemporaries, says:

> "The *Western Rural* has firmly advocated one large hole for the trees in an orchard, that is, making the whole plat of one uniform depth in tilth, and it has the sanction of those who best know our prairie soils. The advice has also been coupled with the additional statement that to insure perfect success in extra deep plowing, whether in the orchard or out, that it must be preceded by thorough drainage. The reason is obvious. It is to prevent the mortaring of soils, and other untoward mechanical action."

For our part we do not understand how the water will pass away more readily from "one large hole" in an acre than from forty small ones. But after all, the main suggestion intended to be conveyed was that the stereotyped advice to underdrain and subsoil an orchard two feet deep, is a profitless operation in the vast majority of cases. We think that by mounding or ridging the soil, so that the trees can be planted higher than the natural ground was, and the water drain away over the surface, the trees will do just as well, and the results be in every way as good, as by going to the enormous expense of making "one large hole" all out of one acre.

Moreover, we believe that, notwithstanding this century hallowed advice, few, if any, have ever followed it. It is one of those things which book makers think ought to be accomplished, but which orchardists seldom do.

Who has underdrained and subsoiled two feet deep an orchard of say several acres? Will he please report the fact and the results. The details of such an experiment, extending over say ten or fifteen years, would be read with great interest by our readers.

The Benoni Apple.—In various quarters we note the rising popularity of this rather old apple. In the southwestern and western States, we have of late seen frequent notices of its good behavior. The most recent is by a correspondent of the *Maine Farmer*, and shows how well it does in the east. Some beautiful specimens were sent to the Editor, who says of it:

> "In regard to the name of the apple we can give no information, other than that it originated in Dedham, Mass., and its good qualities have caused its culture to be widely extended, although Thomas says it has not succeeded well in all localities. It is a late summer fruit, highly esteemed for dessert purposes, and Warder says 'indispensable to the amateur.' It is possible, could its history be fully known, that it might be found

to perpetuate some event in family history of which we know nothing."

The Trophy Tomato.—The Tomato varies very much by soil, and by *general health*. To so great an extent does this occur, that people often think they have the wrong kind, or that there is no difference between one kind and another. To get at the real value of a variety we have therefore to look to its *general* behavior. As a rule we believe the Trophy has given satisfaction the past year. If care be taken in the selection of the seed, weeding out sickly plants, and by gathering only those fruit for seed which are typical of the best virtues of the Trophy, it may keep in popular estimation for years. We believe it is only because care has not been given in these particulars that other, once good, varieties "ran out."

Underhill, Newson & Co., Nashville, Tenn., says a prominent western agricultural paper, have one of the "largest, best assorted and most reliable nurseries in the Southern States."

The Red Maple.—The *Country Gentleman* says that

"An English horticultural work says that the red maple, so common in all parts of this country, is one of the handsomest of maples, on account of its scarlet flowers in spring, its red fruit in early summer, and the red tint of its decaying foliage in autumn."

And this is just what we have been telling our people over and over again for years past. The time will come when this native tree will be as popular for general planting as the Norway Maple now is.

The American Pomological Society.—The Executive Committee have decided to fix September 10th, 11th and 12th for the meeting this year in Boston. Although sixty acres of their good old city is burned, we are pleased to learn that no part of their disposition to welcome their friends has been consumed by the devouring element, but that the horticulturists are determined that those who attend there this session shall class their visit among the most pleasant reminiscences of their lives.

Boston Losses by the Fire.—So far as we are able to learn, the horticulturists of Boston have not been among the serious losers by the fire. The names of Parker, Wilder & Co. were in the published lists as among the very heavy sufferers, but we are pleased to be able to say that, except by failures, in some few instances, of insurance companies to make entirely good their responsibilities, there will not be much loss. This will be cheering news to Col. Wilder's host of friends.

Tree Labels.—In one of our earlier numbers, Prof. Page, of Washington, D. C., communicated an interesting article, showing how mica might be made to protect the writing on wooden tree-labels, so as to make them last for many years. We have often been surprised that this excellent hint remained dormant. It required every one to do the work for himself; but people have too much to do, and if it could only be done cheaply for them, it would be immensely popular.

And now we have it. Some samples from Wood & Hall are very neat. The label consists of a flat piece of brass, with the edges turned down over a piece of mica, through which we read the neatly printed label, as though we were reading time from a watch dial-plate through the glass. For durability and neatness, it is as near perfection as it is possible to get.

If now some one will invent a plan by which one may *easily* open and close a similar label, by which we *ourselves can write* any name we need beneath, absolute perfection of labeling will be reached.

SCRAPS AND QUERIES.

PROPAGATING BILBERGIAS.—*S. E. P., St. Joseph, Mo.:* "Will you please inform me in what way Bilbergias are propagated, either by seed or otherwise. I have a packet of seed from which I very much desire to grow a few plants, as they are difficult to obtain from florists; also whether the 'Hermannia' and 'Sparmannia' are the same plant?"

[Bilbergias, like all the pineapple family to which they belong, usually propagate by suckers which generally appear freely when the plant is in flowering condition. The seeds will doubtless grow readily in a moist stove heat of about 70°.

The Hermannia and Sparmannia are very different plants. The common *Hermannia odorata* is a dwarfish finely cut leaved, yellow flow-

ering greenhouse shrub, and sometimes called *Mahernia odorata*. *Sparmannia africana* has large coarse Linden like leaves, and orange and white flowers.]

THE PEN APPLE.—*T. Z.*, writes: "Some three or four years ago, more or less, there was quite a talk about a new apple which originated somewhere in Pennsylvania, and I think Lancaster county. It was called "Penn" apple, not the old Wm. Penn. I believe it was exhibited two or three times at the winter meeting of the Pennsylvania Fruit Growers' Society, where it was highly praised; also I believe a premium was offered and given at the annual exhibition of the Pennsylvania Horticultural Society in September, 1871. Can you or any of your readers give any further information as to its origin, character, &c., and has it really proved a new and valuable variety?"

[We have several accounts of this apple, and have stated in former numbers what we know about it, and should be glad to hear direct from headquarters what they say of it.]

GRAFTING THE WILD BLACK CHERRY.—*W. T. B., Hammonton, N. J.*, says: "I have secured some young and thrifty wood of the Wild Black Cherry, and would like to be informed in the *Monthly* if there is any way to propagate it. I can get good stock to graft on if that can be done successfully. Can it be propagated by grafting, budding or by cuttings, and if so, will you please inform when it should be done and mode of doing it?"

[The Cerasus serotina is the cherry probably meant. There has been no occasion probably before to make the grafting of this desirable, but by analogy in other cases, no doubt it would graft or bud readily on seedlings of its own kind. No doubt slit layers of young wood would also root readily.]

SITUATIONS.—The past two months we have been inundated by letters from parties wishing "suitable men," or from others offering their services for all sorts of purposes. It would require a couple of hours each day to answer these letters. We have not these hours to give to the subject. There are some personal friends who have a claim on our time. We must try when these come to us to serve them, more than this we cannot do. If letters come we read them. If it come in our way we will do what we can for the writers, but under no circumstances can we enter into any correspondence on these matters.

RULES FOR GOOD BREEDING.—A correspondent remarks that a note he contributed to the *Gardener's Monthly* some years ago drew him into a correspondence which consumed considerable time, he had little ability to spare. No *gentleman writes to another without having personal reasons for knowing that such correspondence will be agreeable.* And persons who presume to write to perfect strangers without this knowledge, have no right to be offended when they receive no replies. Knowing that many persons do not understand these rules which prevail in good society, we usually withhold the full name of many of our correspondents, except in cases where we know it is perfectly agreeable to them. If any one have anything to ask of our correspondents, our pages afford the proper medium for all legitimate enquiries.

TO CORRESPONDENTS.—We have to return our best thanks to our numerous correspondents for their many favors during the past year, which, judging by the number of excellent communications now on hand, bid fair to be continued for the future as in the past. We sometimes like to keep these on hand a little while, in order to have the chance of varying the contents of each number. In case the favors are not immediately used, we hope our friends will not therefore imagine their favors are not valued.

We once in a while receive offers from parties to write for "fair pay" for our magazine, but the *Gardener's Monthly* was established to afford horticulturists a *medium for communication* one with another, whereby all may learn. This is the reason of the low price of the magazine—*two dollars a year*. If we were to make it a mere money speculation, the price would be four dollars a year. We feel that we have a *moral claim* on any good idea from our readers "without money and without price." We do not ask for long articles, such as high priced magazines would expect to pay for, but good hints, and perhaps brevity has the advantage.

JAPAN EVERGREENS.—*R. B., Philadelphia*, says: "I do not see that any of you have given a reason why the evergreens of Northern Asia stood the extent of the past spring's severity better than the American natives. Crack that nut."

[That is a "nut," and well worthy of the study of those who are engaged in evolving the laws of creation. There never was a better attested fact than that *all* of the plants of Asia—deciduous as well as evergreen, stood our last winter comparatively uninjured, in the midst of the terrible destruction among our own trees.

It has also been demonstrated by the *Gardener's Monthly* correspondents that the physical cause of the loss was the drying out of the moisture in the plants faster than the roots could supply it.

This reduces the question to this: why have the plants of Asia a greater power of resisting winter evaporation than so many of our own trees?

In connection with this subject may perhaps be associated the fact that the plants of the Pacific coast *all* do so indifferently in the Eastern States, while the plants of the colder parts of Asia do so well; and further may be considered the interesting fact so ably developed by Prof. Gray in his Dubuque address, that while the plants of the Pacific coast rather favor the flora of Europe; that of the Atlantic States favor Japan. There is evidently here a mystery not altogether beyond the solution of man; and we commend the whole subject to Mr. Darwin, Dr. Gray or Prof. Shaler of Harvard, who have opportunities in the line of their studies for some interesting discoveries.

INTERPRETATIONS OF THE POSTAL LAWS.—As no one can tell the meaning of the postal laws by reading them, we have had recourse to the general office at Washington. Post offices through the country go by these interpretations. The decisions affecting horticulturists are:

Dealers in seeds must prepay two cents for each fraction of two ounces.

Letters not fully paid must pay double the prepaid rate which should have been paid, when it reaches its destination.

All merchandize is limited to twelve ounces. "The dealer in plants is on the same footing as dealers in any other kind of merchandise."

Chromos and engravings are not merchandise. These may go in packages of 4 lbs., at one cent for each fraction of two ounces.

Any matter contained in a sealed envelope must pay letter postage; even cutting or notching at the end makes no difference.

Proof sheets of all descriptions, except of *books*, must pay letter postage.

"There is nothing in the postal law to prohibit the enclosure of printed matter in packages of merchandise, *provided* the postage is prepaid thereon—2 cents for each 2 ounces or fraction of 2 ounces." We suppose under this decision one might send packages of circulars or catalogues to one address in this way.

Any *writing*, even an "alteration," subjects a printed article to letter postage. This will necessitate our catalogue makers to look sharp after the proof readers.

Manuscript for magazines, and all other manuscript but *book* manuscript, can only be sent at letter rates.

Nothing must be written on the wrapper but the address. If printed matter be sent, and "printed matter" be written on the wrapper, the whole package is subject to letter postage, and the receiver pays double letter rates on the whole thing. It used to be *required* to write on the wrappers "seeds," "bulbs," "plants," and so on, as a guide to the postmaster to see whether these things were so. It will be seen this is forbidden.

Packages of herbs and roots will only be forwarded when the wrappers are so arranged that the contents may be examined without destroying or injuring the wrapper.

Cards, circulars, and "&c.," whatever this may be, go at one cent for each two ounces or fraction thereof.

Manuscript drawings are not to be considered prints or engravings, and so must pay letter postage. This will operate badly on our landscape gardeners and architects who have heretofore sent their plans by mail.

Letters addressed to initials are to be sent to the dead letter offices. This will operate against gentlemen advertising for gardeners or gardeners advertising for places unknown to each other. "Apply to J. B.," or "pro bono publico," or any similar sign, will now have to be banished from the newspapers.

Any writing of any character inside a package of seeds, plants, grafts or cuttings, subjects the whole package to letter postage. Thus one may not write the name or in any way designate by any "character" the names of the seeds or scions sent, unless such characters are *printed*. Large dealers can print the names, but for amateurs and others for whose use one would suppose the law made, will find it troublesome. One can perhaps cut out the printed letters or figures in a newspaper or hand bill and wrap

around each little piece of graft, and refer in a letter to these letters or numbers.

Another decision says that the government is not liable for any mail matter after *it is out of its control*. There are many of us would like to know whether it is responsible *before it leaves*. It would be a good many dollars in some of our pockets if it were The Postmaster General evidently thinks it is responsible by the form in which this decision is given. We believe he is wrong, but he ought to know best.

This close our "post office" chapter for today. There are few matters more worthy of the attention of horticulturists than this one of postage, and we feel we need no apology for the space we devote to it.

Since this was written, Messrs. Harmer and Townsend of the Pennsylvania delegation determined to get relief *at once*, but the difficulty was to get rid of "routine." They enlisted General Butler of Massachusetts in the cause, who, always distinguished in the ways of Parliamentary law, got Mr. Townsend's bill an immediate hearing. Now the rate and weight are put back to last year; but it is manifest from our abstract of "decisions," that the whole code needs a revision. Let horticulturists still keep the ball moving.

SHEPHERDIA ARGENTEA.—The *Buffalo Berry* is the plant referred to by *E. Y. T., Richmond, Ind.*, in the following: "I enclose twigs and leaves of what I called Nebraska Currant, a native of a marshy place in Nebraska. It is said to bear enormous crops of fruit almost exactly resembling Red Dutch Currant, one kind red and one yellow. I am told it has many seeds like a currant. The plant looks to me like Black Haw. Do you know from these what it is?"

EXPRESS CHARGES.—We have expensive reasons for again saying to our correspondents, that unless their packages are marked "paid thro'," and the receipts marked "paid thro'," in like manner the receiver has to pay again. If merely marked "paid," the companies insist they are only paid in part, and we very often have to pay over again as much as the sender originally paid. This is especially the case with the *Adams'*.

A MONTHLY HORTICULTURAL PAPER.—*I. S., Walbridge, Pulaski county, Illinois*, was told by a friend, and we wish we had hundreds of such friends, that the *Monthly* might suit him. He says: "A monthly paper is almost unendurable to a western man, but the *Gardener's Monthly* may possess quality enough to bear with it."

[We hoped long ago that the taste for pure horticulture as distinguished from mere agriculture, would advance so as to warrant a first-class weekly. When the time comes it will no doubt be done. Those who wish for this thing must work more for the "love of horticulture" than most have been in the habit of doing.]

DELACHAMPSIA ROEZELIANA is the name of the plant referred to below by a "subscriber." "Will Mr. Meehan please inform me the botanical order of the enclosed, 'Delacampia carnea' by florists?"

[It belongs to the natural order of *Euphorbiaceæ*, of which the common *Poinsetta* is an illustration. The flower, properly speaking, is in the centre of the heart shaped flesh colored bracts; just as they are in fact in the Poinsetta, where the crimson leaves are well known to be but floral bracts.]

VALUE OF THE GARDENER'S MONTHLY.—In accordance with our rule, we have no "free list." We have always preferred a fair list of good paying subscribers, than to boast of "our circulation," when that circulation is half made up of "dead heads," who hardly deign to read what they do not think worth paying for. Hence the publisher feels gratified by the following note from one of his "renewals:" "I have free, three leading papers and a hard dry summer to contend with and little time to read them; but still the *Monthly* comes every time like a flower, fresh and gay, and will always be found interesting, old or new. I will not give it up. Enclosed is my subscription for 1873."

LIME AND ASHES FOR PEARS.—*E. H. S., Suspension Bridge*, says: "I have applied lime and ashes when digging the pear trees in the fall, consisting of bones and all sorts of rubbish, in the spring close pruning and thinning out of branches. Fruit wonderfully improved, especially the Seckel variety, which is now No. 1."

MARBLEHEAD SQUASH.—Mr. Gregory writes: "I send you a couple of pieces of my new squash, 'Marblehead.' I find on an average this new sort has a more flinty shell than the Hubbard, of a different color, and is, as a rule, of

a different shape, being flatter on the stem end, and has a greater specific gravity; it combines sweetness and dryness more, and keeps longer. One capital characteristic is that it is perfectly pure from all admixture with any other sorts, and none but those who have undertook the task of working a badly mixed variety up to a standard of comparative purity, can fully appreciate this. In size and yield it equals the Hubbard. I have tested scores of kinds of squashes sent me from every part of the United States since first I introduced the Hubbard, but have found but this and one other variety worthy of being introduced as standard sorts."

[The above was not intended for publication, but we like to help a good thing along—our "chief cook," to whom we referred this matter—and if she does not know, nobody does, asserts that it is the best thing out. The editor agreed with her at the eating.]

THE MARBLEHEAD SQUASH.—Mr. Gregory says: "I omitted to state when writing of the specimen of squash sent on, that they must not be confounded with a blue variety that sometimes grows with the Hubbard, which is a hybrid, and when planted by itself the fact is more strikingly shown by the numberless sports that come from it. It was made originally by growing a thin skinned blue variety along side the Hubbard; we used to call the thin skinned sort the Middleton Blue. The new kind I send you is on the contrary as remarkable for purity, being without exception the purest squash I ever grew."

PLANTS IN BLOOM at Rhosynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia, Pa.—October, 1872.

HARDY HERBACEOUS PLANTS.

Achillea	ptarmica, Yarrow
Anemone	japonica alba, Wind flower
	rubra
Begonia	Evansiana
Centaurea	Americana, Blue Bottle
	cyanus
Chrysanthemum	indicum var.. Chusan Daisy
Coreopsis	lanceolata, Tickseed sunflower
Erysimum	Perofiskianum
Gentiana	Andrewsii, Closed Gentian
Lychnis	dioica albo pleno, Bachelor's
Phlox	paniculata, Lychnidea [Button
Plumbago	Larpentæ, Lead wort
Sedum	Japonicum, Stonecrop
	variegata

BEDDING PLANTS.

Aloysia	citriodora, Lemon Verbena
Celosia	cristata, Cockscomb
Erythrina	cristagalli, Coral tree
Petunia	hybrida
Ruellia	formosa
Salvia	coccinea, Sage
	splendens
Verbena	chamedræfolia
Viola	tricolor, Pansy

SHRUBS IN FLOWER.

Cydonia	japonica, Japan Quince
Eleagnus	hortensis, Oleaster
Lonicera	Belgica, Monthly Honeysuckle
	flexuosa, Chinese
	Halleana, Japan
	sempervirens, Trumpet
Spiræa	Douglassi
Rosa	(Hybrid Perpetual)
	Baron Prevost
	Geant des Battailes
	Jules Margottin
	(Bourbon)
	Souvenir de la Malmaison
	(Indica)
	Archduc Charles
	Hermosa
	Rose
	(Indica fragrans)
	Bougere
	Cells multiflore

GREENHOUSE AND CONSERVATORY.

Abutilon	album, Chinese Bell
	Adolphe Berangere
	nivium
	striatum
	Thompsoniana
	vexilarium
	grandiflorum
Ageratum	Mexicanum, Blue Mist
Asclepias	curassavica, Swallow wort
Bouvardia	jasminiflora
	triphylla
Canna	indica, Indian Shot
	Warscewiczii
Cestrum	regale
Clerodendron	japonicum fl. pl.
Cuphea	Danielsiana, Cigar flower
	platycentra
	strigulosa
Cyclamen	hederæfolium, Sow bread
Daphne	odora, Spurge Laurel

Eupatorium	fruticosum, White Mist
Fuchsia	coccinea var., Ladies Eardrop
Geranium	zonale, Crane's Bill
Jasminum	grandiflorum, Jasmine
Justicia	carnea
Malcomia	maritima, Virginian stock
Olea	fragrans, Olive
Oxalis	Bowii, Cape Sorrel
	flabellifolia
	floribunda alba
	rosea
	grandiflora
Passiflora	intermedia, Passion flower
	Kermesina
Plumbago	capensis, Lead wort
Primula	sinensis, Primrose
Russellia	juncea
Salvia	coccinea, Sage
	involucrata
	splendens
Serissa	foetida
	flora pleno
	albo marginata
Solanum	jasminoides
	variegata
Tricyrtis	hirta, Japan Uvularia
Tropæolum	Lobbianum, Indian Cress
Thea	viridis, Tea [well
Veronica	Andersonii, Shrubby Speed-

THE CATALPA.—*P. B. R., Des Moines, Iowa,* says: "The Catalpa grows three feet (3 ft.) from seed the first year in Iowa. I have several of that height (and one 37 inches) raised from seed sown about April 20th, on old land 22 years in cultivation. and never manured, the only preparation being to fork it up eleven inches deep and rake it fine.

With other tree seeds I have had only tolerable success. Better with Norway Spruce, Scotch and White Pine than some others. Contrary to expectation, I succeeded better with late than early sown evergreen seeds. Winter comes early and suddenly; on the 12th of December I was planting trees and shrubs, on the 15th it froze up to stay."

[The Catalpa is not only a very rapid grower, but the timber in durability is superior to Chestnut. The worst of this tree is that the terminal bud gets killed when young, and as a side bud has to make a leader, the trunk becomes somewhat crooked. But this could no doubt be remedied by cutting back the young trees to the ground when about three years old, when a *very vigorous* straight trunk succeeds. We regard the Catalpa as among the most valuable of all our timber trees.]

PROPAGATION OF GLOXINIAS.—*R. S., St. Louis, Mo.*, writes: "Will you please tell me where Gloxinia seeds is to be had, and how is best to raise them? I do not see the seed advertised. I have a small greenhouse attached to my dwelling, and wish to grow some of these, having been attracted by their beauty when east."

[These are seldom raised from seed except by hybridists who wish to raise new varieties. They are propagated from leaves. These are planted just as one would cuttings, and placed in a close atmosphere with a temperature of about 70, when a small bulb is formed at the base of the leaf stalk from which a plant pushes up next year.]

PITCH OF A GREENHOUSE.—*Jno S., Baltimore, Md.*, says: "I am about building a small conservatory, and in reading up on the subject see it recommended that the roof should have an angle of 45°. My carpenter thinks this entirely too steep, and as I have no gardener who understands this matter—only a good fellow who looks after my horses, and by whose aid I expect to manage the little conservatory, I apply to you, seeing that you invite all to come with their little troubles."

[We can hardly advise as to the pitch of a plant house without knowing the width, aspect, kinds of plants to be grown, and so on. It is the fault of most books on this subject, that they take these things into small account. 45° is steep, but for winter flowering a house will get more light, and plants will bloom better than in a flatter angle. Steep pitches have also other advantages. They are stronger, do not get out of repair as soon. and less breakage of glass than flat houses, and then the drip, which in our climate is very troublesome, from condensed moisture inside, runs down the rafters and ribs of a steep house, instead of falling about everywhere in the other kind. Without knowing what circumstances of especial moment might interfere to warrant another decision, we should incline to say go on with your 45° angle.]

POMOLOGY.—A correspondent asks "why we do not give more attention to pomology. Drawings and descriptions of new fruits would make

the *Monthly* particularly attractive to some of us, at any rate." We believe we give as much attention to pomology as to any other department of gardening. Indeed, it has more charms for the editor than many other branches of horticulture; but we must differ from friends, if any there be who consider "Everybody's Pippin," "Cute-eye's Beurre," "Amor's Lovely Ann," or "Puffem's Delight" as the essence of pomology. We never had much weakness for this style of literature; and if we have any sins to answer for, it is very likely to be that we did give more attention to it in the earlier part of our editorial life than it was worth. But we notice that other first-class papers have profited by experience, as well as we. The *Rural New Yorker*, *American Agriculturist*, *Country Gentleman*, *Prairie Farmer*, and others which one time, like the *Gardener's Monthly*, delighted in "cuts and descriptions of new fruits," are all now very chary of them, leaving them almost wholly to heads less gray; and when one is necessary, it is not unlikely they can find a cut to match among the old stores on hand. Indeed, we are quite sure we see "the same old cut" doing duty over and over again for lots of "new things." We keep our readers posted on all that we feel satisfied is really new in fruit-culture, in its widest sense, but will not lend a hand to the multiplication of hundreds of things which are of no value in the end.

We are glad to find that not only our leading magazines, but leading horticulturists, are in hearty accord with us. One of our leading authors, commending our course in this matter, says:

"The fruit question is also a puzzle to me—that is, to know when and where to stop, and what to introduce and recommend, now that so many new fruits are coming forward, and I am sometimes almost disgusted with it, and think I will have nothing more to do with it; but, as people will introduce them and bring them before the public in catalogues and various ways, I conclude that the better way is to find out what is best, adopt it, and let the rest go; or, at any rate, note it as unworthy."

STOPPAGE OF THE GARDENER'S MONTHLY.—We are informed by a friend, that he intends to "stop the *Gardener's Monthly*" at the conclusion of his present subscription, because an article, which the Pennsylvania Horticultural Society thought worthy of one of its highest premiums, received no notice whatever in our report of the October exhibition.

The October meeting of the Horticultural Society was held *very late in the month*. If we had waited till the end of the exhibition, we could have given no notice of it whatever, as the publication of the *Monthly* at its regular time cannot be put off for these things. The notes we made were taken before the judges had examined the articles on exhibition. Some things were thus brought into the room *after our examination was made*, which was a misfortune for the exhibitor, but not, we think, our fault.

It would be a greater blow to our thousands of readers and to the publisher than it would be to the editor, who would not care at all, to have the *Monthly* thus summarily "stopped;" and we hope, for their sakes, that our injured friend will kindly allow the *Monthly* to "go on" again, after the explanation we have made.

WHITE SCARLET SAGE.—A correspondent says: "I like your suggestion that the long latin name for this new sage is entirely too much; but then it seems so absurd to say White Scarlet Sage. How can a thing which is scarlet be white? Can you not give us something more pleasing to the ear?"

[This is rather an old objection for these cases, and arises from persons not distinguishing between a mere name and the thing itself. There is a celebrated English judge by the name of Scarlet; but so far as we know he is never scarlet except when he blushes. At all other times he is classed with white men—yea! a white Scarlet. There be also Browns and Blacks, and Whites all in the same race—white "Black" men and black "White" men. So also in professions, a "Smith" may be a gardener, and a "Knight," who never took up arms in his life, but be the broadest of Quakers.

One might as well quarrel with the name of "Scarlet Sage" itself, for there are *hundreds* of sages as scarlet as this one, and it has no right to claim to itself the distinction of *the* Scarlet Sage. Let our friends remember that a name is but a *sound*. Its only use in life is to distinguish something, and when it does that positively, it is a good name.]

SENDING SEEDS AND TREES BY RAILROAD.—*R.*, *New York City*, says: "I do not know why you think the going back a half dozen years in our postage laws was not intended to benefit

the express companies. You are altogether too charitable. I happened to be in an express office recently as they were changing loads, and the number of small parcels with our leading seedsmen's brands, was astonishing.

I hear that the old stage coach companies are taking heart at Mr. Cresswell's new postage law, and have some hope of getting Congress to prohibit certain goods from going by railroad. With the railroad and post-office cut off, they expect jolly times. It is hardly credible that the Government will take so retrograde a step as this; but it is not at all unlikely that they may abolish the three cent letter rate and go back to the old six cent charge Retro, not progression, seems the order of the day."

[Our correspondent writes seriously, but were it not for our unfortunate experience with the last postal law, we should think he was in jest]

BOOKS, CATALOGUES, ETC.

THE FRUIT RECORDER.—No one magazine can do everything well. It is always an advantage when one specialty can be managed so as to receive undivided attention. Purdy started a paper to be devoted exclusively to small fruits. It has proved a complete success, and we note that he is seriously thinking of making it appear twice a month.

TRANSACTIONS OF THE MICHIGAN STATE POMOLOGICAL SOCIETY.—We are under obligations to Mr. C. J. Dietrich, Secretary, for a copy of this handsome and useful publication, which came to hand some time since,—but got removed to our library cases from the "book table" before we had examined its contents.

TRANSACTIONS OF THE ILLINOIS HORTICULTURAL SOCIETY FOR 1872.—From O. B. Galusha, Secretary, another handsome and useful volume highly creditable to all concerned. $1 30 pays for membership, and membership entitles to the report. The discussions and reports are very fully given, and afford an excellent inside view of pomology as it now is in Illinois.

ADDRESS DELIVERED AT THE OPENING OF HUMBOLDT COLLEGE, Springvale, Iowa, by President S. H. Taft.—Nothing interests one traveling in the far west more than the great importance evidently given to education. The bare necessities of life are hardly secured,—in any new settlement, before the school house goes up, and this often proves for some years, the handsomest building in the town. But it is not only in the mere matter of an education which shall in time enable the student to gather together the more easily dollars and cents, that the western men concern themselves with, but the love of truth for its own sake, call it *science* if you will, but it amounts to the same thing, seems to have a strong foot-hold among these people Nothing surprises an eastern man more than the knowledge of the sciences displayed by the average of people he meets. The *deeper* knowledge would probably be found in a few select eastern instances, but the *general acquaintance* with these things is a western trait.

These suggestions occur to us in reading this address. Here is a college which has started out with the deliberate intention of outshining Harvard,—and this too on a tract of land which fifteen years ago was but "a howling wilderness." What is more to the point, they are succeeding in getting towards that eminent position at a pretty rapid pace. Humboldt College is already among the great and wonderful successes of this wonderful west. May it have all it desires. What would this country have been without Harvard? What will it be when we have a score or so like it?

RENNIE'S ILLUSTRATED CATALOGUE, Toronto, Canada.—Most catalogues are so very much alike, even in their excellencies, that it is seldom we can find any with special points which will permit of a special notice, but in this very large and full catalogue we note sketches of several agricultural implements, which appear to have some merit, but which are not in use this side of the St. Lawrence to any great extent.

VICK'S ILLUSTRATED FLORAL GUIDE.—It is a pleasure to handle so beautiful a catalogue as

Mr. Vick always issues,—and then independently of its value as a seed catalogue, it is filled with directions and hints for ornamenting grounds, that it is equal to a good garden book at the same time. There is a beautiful colored plate of the new Japan Cockscomb, which is scarlet instead of maroon, as in the common kind. Vick's chromo this year is a collection of Holland bulbs, very distinct from his former ones, but quite as beautiful as any.

APPENDIX TO DOWNING'S FRUITS.—We have received this, which gives the fruits named and described in various places since the appearance of Mr. Downing's large book.

We find by this that during the past three or four years we are enriched to the tune of *one hundred and fifty* new apples, and fifty-nine new synonyms, which, for "pomological" purposes, are as good as new varieties. Grapes have become disgusted, and give us only five new ones. Peaches have shown more courage, and have brought forth eleven. Pears give *thirty-three*, but America furnishes but six of these. The quince has but one improvement; and the raspberry but four. In the index we find named the apple, grape, peach, pear, quince, raspberry and "Susqueco," whatever class of fruit that may be,—and shade of W. R. Prince! no new strawberry! However, the other departments have done their share. Mr. Downing deserves the thanks of the whole community for his arduous labors in keeping us in the run of all these new things. But where is it to stop? Are we to go on this way for the next few years? if so we shall have a "new" fruit for each member of the community, when a man may not only sit under "his own vine and fig tree," but have his own variety also. But seriously, if this thing is to continue we had better give up naming things at all, and each sow seed for himself, for it must be evident that if the majority of this immense number of fruits was really worth naming, a poor fruit in a lot of seedlings must be the exception rather than the rule.

SEQUOIA AND ITS HISTORY, by Prof. Asa Gray.—This is the Dubuque address of President Gray, issued in neat pamphlet form by the Essex Institute, Salem, Mass.

NEW AND RARE FRUITS.

THE DUKE OF BUCCLEUCH GRAPE.—After what has already been said in favor of this Grape, it may appear unnecessary to add anything in its favor. I am, however, of opinion that those who have spoken well of it in other respects, underrated its keeping qualities. I am led to say so from having on the 12th inst. seen a bunch, of it at the Tweed Vineyard, in a good state of preservation. Some of the berries were showing signs of shrivelling, still the bunch was in a presentable condition, and, considering that it was ripe early in July, the flavor, to my taste, was decidedly good. The Duke is undoubtedly a strong grower, when compared with other standard varieties growing side by side with it Its superiority in this respect is very evident. My visit to the Tweed Vineyard was of a hurried nature, a circumstance I much regret, as any one interested in Vine or Pine growing could not fail to benefit by a thorough examination of the various structures devoted at this place to the culture of these fruits. The Lady Downe's house is at the present time worth going a day's journey to see. Fancy a span-roofed house 200 feet long by 25 wide, furnished on each side from floor to ridge-board with an extra heavy crop of Grapes, as black as Sloes, and fine both in bunch and berry as regards size, and you have a Grape picture not to be seen every day.—J. H., BRAYTON, in *Gardener's Chronicle.*

BLACK'S EARLY PEACH.—*Z. writes*: "Your correspondent will find an engraving and a full description of Black's Extra Early Peach, by Dr. J. Stayman, in the Pomologist and Gardener of 1871, September number, page 217. Also a notice of it in the appendix to Downing's Fruits and Fruit Trees, of 1872."

[We now remember the introduction, and that we were so much disgusted with the statement that it was "ten days earlier than Hales," that we made no note of it for the *Gardener's Monthly* as we generally do of "likely" things.

It is strange that all these wonders should be just *ten* days in advance. Won't some one have the goodness to vary this thing a little – nine, or even nine and a half would be a change; or if ten is not to be the limit, let it be eleven, but in any event do not keep the raise every time at ten.]

NEW SEEDLING STRAWBERRY.—I have recently received from G. Cowing, of Muncie, Ind., a box of his Seedling strawberry, containing some of the largest berries I have ever seen. The fruit is produced in immense clusters, berries frequently irregularly flattened, is of dark red color, firm texture, sprightly, not very acid flavor, and excellent. The plant is an extraordinarily strong grower, and apparently more hardy than most varieties, and I hope will be a valuable addition to the small list of varieties that are really adapted to general cultivation; but of course it will require an extended trial in different localities to prove its general value. Mr. Cowing is an intelligent amateur, who has given many years to the cultivation of strawberries, and selected this as the best from among many thousand seedlings, and after years of watching, has full confidence in its value. I believe he has no plants for sale at present.—E. Y. TEAS in *Country Gentleman*.

VIA SEEDLING.—We have received from Mr. W. T. Justice, of Lunenburg County, samples of a fine looking apple called the Via Seedling, for which he will please accept our best thanks. It is a fall apple, in form smooth, round and flattish; color red, with numerous white specks; smell fragrant, and taste most excellent. The sample, Mr. Justice tells us, was taken from trees of his own raising. He says he has been very successful in raising fruit trees of various kinds, and remarked incidentally that he found more money in the cultivation of the soil than in any other pursuit he had ever engaged in.—*Petersburg Messenger*.

BROCKWORTH PARK PEAR.—This new English pear, which has already been noticed in the *Monthly*, appears to keep up a high reputation in England.

ALEXANDER PEACH.—We noticed some time ago a peach raised by Messrs. Jabez Capps & Sons, and by a plate now before us we find it has been named the *Alexander*. If the colored plate be correct, (and as it is made by Prestele, we may assume that it is) it is the most beautiful thing in the peach way we have ever seen. It seems to have shaded stripes like an apple – and almost as dark as a Red Astrachan. Indeed, except of course it is not as large, one might suppose that an apple like the Alexander, suggested its name.

DELICIOUS PEAR.—A correspondent in northern Maryland, sends us a box of Pears and a letter, saying "don't publish," which is rather a hard hint for an editor. There is perhaps no harm in saying that at this date, December 20, the pears are being eaten, and that they are equal to Seckels, and are about the same size. They are a seedling of that section.

NEW AND RARE PLANTS.

NEW BICOLOR GERANIUM, "PRIDE OF MOUNT HOPE."—It is a seedling of Messrs. Ellwanger & Barry, and a cross between Buist's Beauty and the well-known Mrs. Pollock; foliage large and of a brilliant yellow color, with a broad chocolate zone. Unlike all other Bronze Geraniums we have yet seen, this succeeds best *under the hottest sun;* the bright colors of the leaves do not appear on plants grown in the shade or under glass. Its vigorous habit and highly colored foliage will make it, we think, a very effective and valuable plant for borders, edgings, &c. "It is certainly far more effective than any tricolor or bicolor yet introduced," is a reliable English opinion of it.

ACHYRANTHUS CASEI.—During the summer of 1871, Mr. Case, of Richmond, Ind., secured a Sport from Achyranthus Lindenii, very similar in its markings to Achyranthus Aurea Reticulata, but differing from Achyranthus Aurea Reticulata in having perfect leaves, like the origi-

nal Achyranthus Lindenii. It stood the sun well during the past summer, retaining its color, and every way proved, Mr. Case says, a good bedding plant

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NEW MAGENTA PRIMROSE. LADY MADELINE TAYLOUR (Knox)—Mr. Cannell, in his English Catalogue, says:—Who, when they first see the dear old English Primrose showing its bright yellow bloom, can help but welcome it as the herald of approaching spring, and feel that stern and dreary winter has passed and gone, and that the glorious and flowery summer is near at hand; but how much more is that beautiful yellow emblem surpassed by the introduction of the above splendid bright magenta colored variety, which valuable kind was raised in Ireland; its habit of growth and freeness of bloom is in every way similar to the yellow variety, it is figured in the *Floral World*, and considered by the editor of that periodical, who had a plant submitted to him for inspection, to be one of the choicest hardy gems of new plants this year. A great acquisition for spring bedding.

NEW HARDY HYBRID FUCHSIAS.—Under this head the English papers are advertising a race of Fuchsias, as having "stood" the English "winters of 1871 and '72." Of course they will not stand the winters of the Northern and Middle States of America, but will be much more hardy than the ordinary classes of greenhouse Fuchsias. These originated with the writer of this paragraph in 1841, with Fuchsia fulgens, a tender Brazilian species as one of its parents; "St. Clare," the best selection of the seedlings from this cross, being first in the field. These later races have been raised between hardier species, and will bear considerable frost, provided it be in an atmosphere not very dry, in which frost is much more trying to plants.

The following are the names and characters of some of these sub-hardy kinds:

BLAND'S HARDY HYBRID NO. 1—Is a perfect *Globosa* in shape, and when its buds are about to burst exceeds in this respect the old variety; free graceful habit; flowers of a fine color; growth from 4 to 8 feet high.

BLAND'S HARDY HYBRID NO. 2—A most profuse blooming variety, medium size; flowers of bright color, evidently the result of a cross with the old *Gracilis;* it grows up to quite a bush, and is particularly attractive.

BLAND'S HARDY HYBRID NO. 3—Somewhat similar, but a very late, small, and abundant bloomer. For a mild climate, and fine autumn months in England, it is a most valuable out-door variety.

BLAND'S HARDY HYBRID NO. 4—Has the largest blooms, and evidently a fine cross with *Globosa* and *Try Me 'O;* its large unexpanded and perfectly round pods and small tubes give a very striking appearance; strong grower, and a profuse bloomer. A fine out-door variety, and for shrubs and hedges this must ultimately form a conspicuous object in our garden decoration.

LONGIFLORA (*species*).—This hardy variety appears to have been introduced many years ago into the garden of H. Doubleday, Esq., of Epping, Essex; and although possessing great beauty, strong vigorous habit, and produces abundance of long pendulous blooms of the brightest coral scarlet; glossy and ornamental foliage. It appears to be totally unknown in this country, and in consequence of its long flowers I have named it as above. It is certainly one of the best hardy species that we possess, and ought to be in every garden, says Mr. Cannel, whose language we use.

THE KNOWFIELD BEECH.—Every one knows the beauty of the Blood-leaved Beech. This new variety is advertised in England at a high figure. It is said to have stripes of *green* and *gold* through the regular blood colored leaves. The little plants are $5.00 each. It is said to have been a sport from a blood leaved Beech, and has maintained its character under propagation. If it comes out as it is represented, it ought to be one of the finest things ever introduced.

NEW DAHLIAS.—Mr. Gerhard Schmitz, the amateur Dahlia fancier of Philadelphia, still continues in the good work of improving his favorite flower. We have before us a list of twenty-four new ones for 1873. One thing we do not understand is, why names should be so scarce that two should have the same. Here we have "Ceres, rose shaded white;" and another, "Ceres, orange shaded buff." Is this a typographical error, or what?

AMARANTHUS SALICIFOLIUS.—This new plant of last year did not please in the early part of the season; but in the fall, when it changed the color of its upper leaves, it became a great favorite.

HORTICULTURAL NOTICES.

AMERICAN POMOLOGICAL SOCIETY.

Fourteenth Session, to be held at Boston, Mass., on Wednssday, Thursday and Friday, the 10th, 11th and 12th of September, 1873.

DEAR SIR :—

In view of making the next above-named meeting a complete success, and with regard to the probability of a large attendance, we respectfully ask of you to suggest a system of orders or rules for its daily sessions.

If you have any special item upon which you wish a discussion, please name it *distinctly;* and at the same time, state how much time, in your opinion, ought to be occupied by it.

If you have any names of persons whom you think should be on the Committees, please name them and state the Committee upon which they should be placed.

Please address your reply to F. R. Elliott, Cleveland, Ohio, to be received on or before the 2d day of January, 1873.

MARSHALL PINCKNEY WILDER, *President.*
F. R. ELLIOTT, *Secretary.*

MISSOURI STATE HORTICULTURAL SOCIETY.

The Fourteenth Annual Meeting of this Society will be held at Jefferson City, on Tuesday, Wednesday, Thursday and Friday, January 7th, 8th, 9th and 10th, 1873. Delegates are cordially invited from other State and local Horticultural Societies, and a full attendance of the Farmers, Fruit Growers and Gardeners of Missouri is earnestly solicited, and *all* lovers of Horticulture are requested to be present and participate in the discussions of the meeting.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.

The Fourteenth Annual Meeting of this flourishing society, will be held in the city of Reading, Pa., commencing January 15, 1873, at 2 o'clock P. M. Visitors to the meeting are requested to bring with them such fruits as they may possess. New varieties of merit are specially desired, and improved horticultural implements will also be regarded as appropriate. The following will be the order of business :

Election of Officers ; Report of the General Fruit Committee, &c.

Address by the President. New and unfinished business.

The remainder of the sessions will be devoted to discussions on the following topics, as reported by the Committee on Business. Gentlemen whose names are affixed to each, are expected to open the same with a short essay or impromptu address.

1st. What is the most economical kind of fence for farms, orchards, or gardens, and what is the best method of treating live fences ?—THOMAS MEEHAN.

2nd. What is the best time to plant fruit trees? —T. B. JENKINS.

3rd. What is the best preparation of ground for an orchard ?—H. M. ENGLE.

4th. What is the most profitable way of managing a fruit orchard and garden ?—E. SATTERTHWAIT.

5th. What is the best method of manuring fruit trees ?—T. M. HARVEY.

6th. What new or little known varieties of pears or apples are believed to be worthy of more notice ?—TOBIAS MARTIN.

7th. How does water benefit plants ; how do plants feed ; and has science aided fruit-culture ? —J. S. STAUFFER.

8th. What method of propagating grapes produces the healthiest plants ; has grape-growing proved profitable ; has any grape introduced since the *Concord*, been generally reliable ; and why have so many gaapes failed ?—F. F. MERCERON.

9th. How can we best promote the interests of fruit-growing ?—A. S. FULLER.

10th. Is it profitable to beautify one's grounds ?—CHAS. H. MILLER.

11th. What are the most profitable modes of securing fertilizers for the soil ?—WILLIAM SAUNDERS.

12th. What are the best methods of ripening and preserving pears ?—SAMUEL W. NOBLE.

13th. Is underdraining profitable ?—H. T. WILLIAMS.

14th. What are the most troublesome weeds to the fruit grower, and should there be laws enacted for weed extermination ?—WM. PARRY.

15th. Are there any advantages to be derived from shelter belts around orchards ?—J. HIBBARD BARTRAM.

Each member of the Society will be expected to hand to the Secretary, at the opening session a written answer to the following question, and the result will be announced before the adjournment of the convention, viz :—What are the best six Apples, six Pears, six Peaches, two Strawberries, and two Grapes for Eastern Pennsylvania ?

WESTERN NEW YORK HORTICULTURAL SOCIETY.

We very much regret that we do not receive notices of the meetings of the various Horticultural and Pomological Societies, to serve them by a notice of the time and place of meeting in these columns. There are some, we suppose, which do not feel that any notice is of any value to them ; but, on the other hand, we know that there are others who imagine that when their efforts are unnoticed, it is because the *Gardener's Monthly* is indifferent to their success, when really it is the fault of the Societies themselves, in not furnishing us with early information.

Just as we go to press, we receive the circular of the Western Horticultural Society of New York. It is to be held at Geneva, commencing January 8th. People do not generally "get up and go," but like to arrange their little trips a week or two in advance. We hardly suppose, therefore, that any of our readers will be able to go after receiving this number; but, to show our new friends that we wish to serve them if they will only give us the news in time, we append below, as a matter of interest, the titles of the subjects they intend to discuss :

FRUITS.

Apples.—1. What is the best way to keep Apples for family use ? On shelves, in boxes, barrels, &c., &c. ? 2. What new varieties of Apples promise well ?

Pears.—1. What are the best six market Pears ? Discussion and ballot. 2. How late should winter Pears be gathered as compared with Apples, and what is the best mode of keeping ? 3. Is the cultivation of the Dwarf Pear becoming more successful in general ? 4. What new varieties give promise of excellence and value ?

Plums, Peaches and Cherries.—1. What are the best market sorts ? 2. What new sorts promise well ?

Small Fruits.—1. Which of the small fruits are most profitable for market culture ? 2. What experience have we of the superior value of small fruits with extra care of raising and packing for market, as compared with ordinary management ? 3. What new varieties of Strawberry, Raspberry, Gooseberry, &c., promise well ?

Grapes.—1. What does recent experience suggest in regard to the proper distance for setting Grapes in the vineyard ? 2. What are the greatest crops that vines can safely bear at different ages ? 3. What is the experience of the past year with the newer sorts—the Iona, the Eumelan, the Rogers' Hybrids, the Arnold's Hybrids, Underhill's, &c. ?

Nuts.—1. Can any of the Nuts be grown here with profit ?

Drying Fruits.—1. Has there been any recent improvement in the method of drying fruits and vegetables, by artificial heat ? 2. Is it likely that the drying by artificial heat will greatly increase the demand for fruits ? 3. Can Raisins be successfully made from any of our Grapes ?

Insects.—1. What insects are most injurious to fruits and fruit trees, and how destroyed ? 2. What is the best contrivance for destroying the Curculio ? 3. What new facts have we relative to the Codling Moth ?

ORNAMENTAL TREES AND PLANTS.

1. What was the cause of so much injury to Evergreen trees in the winter of 1871 and '72 ?

2. What newly or recently introduced ornamental trees, shrubs or plants are worthy of special commendation ?

3. What are the best six and twelve ornamental foliaged plants for garden decoration in summer, especially for ribbon-gardening ?

4. What are the best large foliaged plants for what is called subtropical-gardening ?

GENERAL SUBJECTS.

1. What experiments have been made in regard to thinning fruits, and results on crops, prices in market and condition of trees ?

2. Is there any encouragement for the production of new varieties of fruits and ornamental trees, plants and flowers by hybridizing ?

3. Have we made any real advancement in the improvement of fruits during the past ten years ?

4. Is it not the duty of nurserymen, fruit-growers, &e., to contribute more freely of their experience to the horticultural press ?

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XV. *FEBRUARY, 1873.* *New Series, Vol. VI. No. 2.*

HINTS FOR FEBRUARY.

FLOWER GARDEN AND PLEASURE GROUND.

Very few of our readers, except of those who have been in Europe, know what *standard* roses are. There is in Europe a species of wild rose known as the Dog Rose, one closely allied to the sweet brier, but which has a very hard woody stem. These are collected from the woods when about one inch in diameter, and cut back to about five or six feet from the roots. Near where the head is cut off from three to five shoots are left to grow during the next season, and when the proper time comes in the summer, these are budded with any kinds desired. Thus they make heads on these straight stiff stems, and are then standard roses. In this country no great success has followed their introduction. In the first place the majority of our pretty varieties are not hardy enough, and in the next, the hot dry suns evaporate the juices so rapidly that not enough gets to the growing head. The circulation up the stems becomes obstructed, and while the head becomes weakened, the sap which wants to get up the stem and cannot, finds a vent in a crop of suckers, which still more divert the course of the sap from the head, and thus the plant we have grafted and cared for, soon dies out. Many have often regretted that we cannot have standard roses here as they have in Europe, and yet we now find Europeans getting up an outcry against the whole thing. For our part we feel that the standard rose business has been overdone in the old world, and should be sorry to see them succeed here to the extent they are used there; and yet we like a little of this kind of art in our garden arrangements, and feel that we have much too little of it.

So far as the rose itself is concerned, the Dog Rose as we have said, does not well suit our climate; but it is said just as good stocks can be made of our Prairie Rose. This is worth trying. The Prairie Rose strikes as easy as the Manetti, and it would not be hard to get up a good supply of them. Not only the rose, but many other striking objects can be had by grafting things "standard high," and in other ways. It is this principle which gives value to the Kilmarnock Weeping Willow and similar trees. Besides this, much may be done by training up trailing things to a certain height, and then leaving them to take care of themselves. The trailing junipers treated this way, make very pretty objects; and the Chinese Wistaria is particularly grand. While however we favor this artificial style to some extent, one must be careful of too much trimming and pruning. Some places are laughing stocks to every person of true taste—every thing sheared and cut into one regular formal shape all over the ground.

As a general rule evergreens please best when they are close and densely clothed with foliage. If one has thin open trees they can be made into the most enviable specimens by a judicious use of the knife. As soon as the frost has probably departed is an excellent time to do this. Cut back the growth of last year to within a few inches of where it started from. It is very essential, however, to remember that the whole plant, *leading shoot included*, must be done at one time. It is particularly essential that the leader be shortened. A new one will push, and generally

will grow straight; if not, a little art will help it. Several leaders will come out sometimes, but of course all must be sprouted off but one. By this simple treatment, any dilapidated old scrub may be brought to the perfection of beauty, if it have not lost its lower branches, when of course, it is beyond grace to restore. Pruning of all kinds should be got through with as soon as possible—the earlier this is done the stronger will plants push in spring. Nothing weakens trees or shrubs more than to be cut severely just as the new growth is pushing.

Rustic adornments very often highly embellish grounds. These can be made of split wood nailed to board frames. The worst feature is that they rot away so soon in our climate as scarcely to serve long enough for the labor. To guard against this every part of the frame work should be tarred or painted, and the pieces used for the fancy work should be stripped of its bark, and painted of various shades of color to represent natural shades of bark. The effect is not so striking as when the bark is left on, but we have to sacrifice a little to permanence.

In those parts of the Union where frost is over, February is the great planting month, but do not plant immediately after the frost leaves the soil; wait till it dries a little, when you can tread the soil firmly about the roots without risk of rendering it hard as it dries more. If circumstances make it necessary to plant in wet soil, do not press the soil much until it gets drier. It is important to have the soil well pressed about the roots, but it injures soil to press it when wet.

As soon as the frost leaves the ground, the lawn should be rolled with a heavy roller, while it is yet soft; this will make it have a smooth surface, take out many small inequalities, and press again into the soil the roots of the finer grasses which the frost may have drawn out. Where new lawns have to be made next spring, the seeds should be sown as early in March as possible, and the ground should be prepared for that now, if opportunity offers. For a good lawn the soil should be loosened at least twenty inches deep, and be well enriched with stable-manure, where practicable, in preference to any concentrated preparations. Guano, super-phosphates, &c., are well enough; but they do not give the soil that *fibre*, or lend it that *porosity* by which it retains moisture and air, so essential to perfect vegetation.

FRUIT GARDEN.

Grape Vines are of course all pruned and tied up. Just as the buds are bursting the steel blue beetle attacks them. Hand killing is the remedy. Where Grape Vines are to grow fast, use twiggy stakes or wire trellis for them to cling to. It is as good as manure. Also in planting Grapes be sure to have a dry bottom. The best security against wet roots is to raise the soil above the level of the surface. Also the drier the soil the richer it may be without risk of injury. Organic manures *sour* rapidly in wet places, and injure fibres.

Remember to keep a sharp lookout for the root insect—the *Phylloxiera* It is impossible to estimate the importance of this discovery. It is believed that *most* of the failures arise from this root insect, and the man who shall succeed in discovering a cure will be one of the great benefactors to grape culture. We noted some time ago that it could be drowned out. Forty-eight hours under water will kill them; but this can be done only when the plants are not growing. Forty-eight hours under water to a growing vine will kill it as well as the insect. We hardly expect much will be done in this way this year. It will take the whole season for those who are interested to become familiar with the insect. They say that though so minute, it will rapidly take every part of bark from the roots, leaving them powerless to supply food to the plants.

The rule, in pruning grape-vines, is to shorten the shoots in proportion to their strength; but if the advice we have given in former summer hints has been attended to, there will be little disproportion in this matter, as summer pinching of the strong shoots has equalized the strength of the vine. Those who are following any particular system will, of course, prune according to the rules comprising such system. As a general rule, we can only say, excellent grapes can be had by any system of pruning; for the only object of pruning in any case is to get strong shoots to push where they may be desired, or to increase, with the increased vigor of the shoot, which pruning supposes will follow the act, increased size in the fruit it bears.

Gooseberries and Currants should have their weaker shoots thinned out, and a little of those left, shortened. It makes the fruit much larger. The foreign varieties mildew badly unless grown where the roots will be moist and cool in summer, but not wet. All these mountain or high northern races, want a cool summer soil. With

the exception of the Cluster there has not been much improvement on the Houghton's Seedling which is the most popular of the more hardy American class Of Currants the Red and White Dutch and Versaillaise are we think still the best.

Of Strawberries, Wilson's Albany remains the *most generally* popular; deficient in flavor, as it undoubtedly is. Of course they "may be set out now," if the spring has come, but such hints are almost too stereotyped to be of service to our readers.

Of the Fruit Garden for February we may say in a general way—Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will of course, not then bear the next season after planting. But this is a benefit; no fruit tree should be allowed to bear the same season. In planting these have a care of deep planting. Even two inches lower than the roots are is often fatal. Plant on a dry day, barely cover the roots; but beat or press the soil very hard and firm.

As to the best varieties of fruits to plant, that is a question which a work, intended as ours is for the whole United States, cannot answer. We are continually publishing fruit lists adapted to the different sections in the body of our work, and to them we refer.

VEGETABLE GARDEN.

In the Middle States, the work for February will, for the most part, consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems, require an abundance of nitrogenous manures, and it is useless to attempt vegetable gardening without it. To this class belong cabbage, lettuce, spinach, etc. The other class which is grown principally for its seeds or pods, as beans, peas, etc., do not require much manure of this character, in fact, they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is best that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung; though to the smell no trace of "ammonia" remains in it.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month, soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees, or mats; and the glass should always be covered with mats at night. Tomatoes, egg-plants, peppers and cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for cauliflower, lettuce, beets, celery and Early York cabbage, a little of which may be sown about the end of the month for the earliest crops. The Cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

Those who have hot-beds will now sow Tomatoes, Egg-plants, Peppers, and other vegetables that can be forwarded by this means; and those who have not, will sow them in boxes or pans, and forward them in windows. Every garden ought to have at least a few hot-bed sashes to forward early vegetables; for if they have no means of applying artificial heat to them, the sash will of itself forward some things considerably.

Many parties like to have Turnips sown in spring. The only way to succed with them is to sow as early as possible, and on a very rich piece of ground, where they may grow speedily. If they do not swell before the hot weather comes, they will certainly run to seed.

About the middle or end of the month, or still later at the North—say the middle of March—Celery and late Cabbage may be sown. Here we usually sow the second week in March.

All gardens should have beds of herbs. They are always looked for in the fall, and nearly always forgotten in the spring. Now is the time to plant Thyme, Sage, Mint, Balm, and other perennial herbs, and Parsley and other seeds of hardy kinds may be sown. When we say *now*, it is of course understood to mean where the frost has evidently broken up for the season. Our readers in less favored climes will not forget it when it does.

In the anxiety to have early crops, people often work the ground while it is wet. But nothing is gained, not until it will powder, when it is dug is it fit for turning up.

COMMUNICATIONS.

NOTES ON SOME HARDY HERBACEOUS PLANTS.

BY JOHN DUNCAN, LEXINGTON, KY.

THE LARGE LEAVED SAXIFRAGES.

S. Stiacheyi.—This well marked species is figured in the "Botanical Register" under the name of *S. ciliata* of Royle, which it is not. It differs from true *S. ciliata* in having glabrous leaves, and also in the circumstance that here the leaves are sessile, that is without stalks. The blossoms are arranged in good large panicles, and present themselves in spring. The corolla is white, or sometimes with a slight infusion of rose color. The plant is a native of the Himalaya Mountains, quite hardy in England, and I expect will prove the same in this country when introduced, which it well deserves to be. It is evergreen, admirably adapted to rockwork decoration as well as pot culture, and its increase and general treatment is the same as that required to do justice to *S. ciliata.* I never saw our present subject except at Kew Gardens, England.

S. purpurascens.—There are only five large leaved species of the present genus in cultivation, and this is by far most handsome, and amongst the rarest of all. The leaves are evergreen and quite destitute of hairyness on any part, and in these two respects they may be said to resemble the leaves of *S crassifolia*, but in the kind under consideration the leaves are simply ovate, the broadest part, of course, below the middle, whereas in *S. crassifolia* the leaves are obovate or inversely egg-shaped, the broadest part being nearer the extremity than the base of the blade. And besides, to the experienced eye, the flowers can yield important aid in distinguishing the kind before us from the one with which we have been comparing it. The blossoms come early in spring, and all their parts are of a deep red or purple color, bright and beautiful, and in this way even the peduncles are tinted down to the very base. A native of the Himalayas, and probably would be hardy in America to which it has not yet, I presume, been introduced. As regards culture, propagation, etc., it should be dealt with according to the details given below for *S. ciliata.*

S. ciliata – This far surpasses all its relatives as regards foliage, and on this account forms one of the most commanding objects that can be put upon rockwork. An idea of what a good specimen of this kind is like, may be conveyed by the fact that I have measured leaves two and a half feet long, inclusive, of course, of the stalk, the blade on such being from twelve to fourteen inches across. It is not evergreen. The blossoms are in panicles, and coming early in spring before the leaves, are not near so effective as they would be were the leaves evergreen. The petals, though uncommonly pale in color, are nevertheless very pretty. Branches are produced plentifully, and by means of these it is quite easy to increase the stock; and the operation should be performed early in autumn or in spring, after flowering is over. Almost any kind of earth will do, but there must be no stagnant water. The best earth is a rich loam, containing a good amount of leaf mould—and I repeat again, every care must be taken to have the drainage good. A neglect of this precaution is sure to result fatally, and may further lead to the erroneous belief that this sort is tender. A native of the coldest parts of the Himalayas, and pretty common in the gardens of Europe.

S. ligulata.—It is not easy to see to what part of the plant this specific name has reference. An evergreen which flowers in spring, and does so perhaps more freely than any allied sort. The leaves are inversely egg-shaped, stalked, and hairy along the edges only. This last character separates our subject from *S. ciliata*, which, strange as it may appear when one thinks of the name, is hairy all over, and as *S. purpurascens* and *S. crassifolia* are completely destitute of all hairyness from them also. Also our subject may be known from *S. stiacheyi* by the well defined stalks, present here, but absent there. The corolla of a rose is not unfrequently a purple color, and the inflorescence a panicle. For particulars relating to culture, etc., see under *S. crassifolia.* A native of the Himalayas.

S crassifolia. An old favorite, needing no recommendation. The leaves are stalked inversely egg shaped, and without hairs, and also evergreen. The flowers bloom out early in spring, and are arranged in considerable panicles. The corolla is very beautiful, the petals being each about half an inch long, and of a rose or purple color. Increase by parting should take effect

after the flowers fade. Does best in a stony, well-drained deep loam, and is fit for border or pot culture, and looks admirable on rockwork. A native of Siberia. There is a variety of this species known as *intermedia*, or sometimes *cordifolia*, and readily distinguished by the short roundish leaves.

NERTERA DEPRESSA

This is an extremely peculiar little plant, and is also at the same time exceedingly beautiful. Its habit and size are about the same as that of *Sagina procumbens*. The flowers are produced very plentifully, but being small and green, just the color of the leaves, it is not an easy matter for the uninitiated to detect them. The berries are the principal ornament of our subject, and they reach the zenith of their beauty in autumn. They are about as big as the fruit of the English mountain ash, colored pretty much like that, but rather more delicate and pleasing, and made so partly by a polished glistening surface. The wonder is that all this happens on a plant no bigger than a moss, and that the berries not unfrequently form quite a dense mass, as the quantity of blossom already referred to might lead one to expect. Probably in this country, except in the sunny South, it would not prove hardy, because in the neighborhood of London, England, in very severe winters, it required a little protection; but it deserves this and far more. It is a native of New Zealand. I do not think it has yet been carried to these shores in the living state. What a gem it would be for a Wardian case, or any similar place! It is almost as readily increased as a *Selaginella*, and delights in a rich loam. Either seed or parting may be resorted to for the purposes of multiplication, the former to be sown in spring, and the latter may be done almost any time if care is exercised

DRACOCEPHALUM.

D. peregrinum.—In this species the stem and branches are of the same general character as those of *D. austriacum*, but a distinguishing mark may be found in the leaves, these being lanceolate and irregularly toothed along the edges. In the plant before us the blossoms are purple, and about three-fourths of an inch long, and produced in handsome racemes at the end both of the primary and secondary shoots. Increase by parting by cuttings or by seed, the first to be done early in the fall, and the second and last in the spring. A rich deep loam. A native of Siberia, and would probably prove hardy any where south of Boston, and well deserving of introduction, if not already in the land. In many European collections.

D. austriacum.—This is a most beautiful plant—herbaceous in the sense that it dies down every year, but the shoots are of a hard woody texture, and grow almost a foot high. The leaves are opposite, and cut into four or five segments. The flowers are large and handsome, being an inch long; purple for the most part, and produced in terminal spikes. The lower lip of the corolla is very delicately spotted, much in the same way as the inside of the corolla of *Digitalis purpurea*, or English Foxglove. The blossoms exhibit during summer, and the species is easily increased, either by cuttings or seed after the manner referred to above under the other sort. A native of Austria, and probably would be hardy anywhere in the States south of Massachusetts. Not very rare in collections in Europe.

SILENE ALPESTRIS.

This beautiful plant grows about six inches high. The blossoms seem almost whiter than snow, so pure do they look when they first expand, and they are produced at the extremity of the erect and slender shoots. Strictly herbaceous and almost evergreen. The stems are of a red color, and the greater part of the plant is viscid, to the discomfort, if not ruin of any small fly that may be in the way. I do not know a more charmingly effective little mountain gem than this. The flowers begin to display themselves early in summer, and do not like some other flowers of other members of the genus, close and unclose again, but continue open without intermission from the first expansion until the fading takes place. Our lovely subject can develop perfectly, either in a sunny or shaded situation, and loves a deep, well enriched loamy soil, enriched not by manure, but by decayed leaves, peat, or such like. Also plenty of moisture during the whole of the dry and warm portion of the year. The rockwork is the nearest approach to its native Alpine home that art has yet discovered, and after growing in one position for a couple or three years, it should be taken up and the earth renewed, when it can be put back again in the same place. It does very well on a border or in a pot, but stones should always surround it. *S viscida*, a synonym. Increase by parting or seed. A native of Austria.

A GOOD LILIUM AURATUM.

BY W. L. AKERS, JOHNSTOWN, PA.

Dr. John Lowman of this place has a plant of the above variety growing in his grounds, worthy of note in connection with those mentioned by "J. B." in the November issue of the *Gardener's Monthly*. It has remained in the same position for several years, sending up but one stem each season; but increasing in size and number of flowers each year. This season the stem was full five feet high, and an inch in diameter, with fifty-six flower buds—some thirty of which were developed at one time, and all came into flower during the season. It was a magnificent spectacle, and filled the air with perfume.

ORNAMENTAL LEAVES FOR BOUQUETS.

BY G. C. T., PHILA.

R. M. in *Gardener's Chronicle*, quoted in November *Gardener's Monthly*, recommends Berberis aquifolium as a border for bouquets. I have for years used these leaves for bouquets, and consider them equal to anything I know of. The evergreen fern, common about Germantown, is also a fine bordering, giving the bouquet a star-like look. In the late spring and early summer months, I make great use of the young shoots of the Hornbeam. Their pleasing reddish brown hue and beautifully crimped leaves, have a fine effect in bouquets. The leaves of nearly all the Begonias can be used. They are striking and unique in bouquets. Few persons seem to be aware of the great beauty of leaves and their value in floral decoration. I make great use of leaves; have even at times used successfully the blades of our ordinary roadside grasses.

GAS TAR.

BY THOMAS OTTAWAY, MIDDLEBURG, OHIO.

I have been using Gas Tar for eight years on greenhouse, staging, pit benches, cucumber and melon frames, and never seen any damage result from it, but now I am told by Mr. Bundy, that Ellwanger & Barry, also Mr. Hooker, both of Rochester, have lost piles of plants by it.

As regards Gas Tar, I believe it contains carbon and ammonia. Certainly there is nothing injurious in that. As an application there is trouble when the ammonical properties are too strong for vegetation. Twelve months ago I built a new pit 40x13, divided it in the centre, had all the woodwork well tarred over, and three days after filled it with roses, geraniums, &c., in cool part. The hot part was filled with tender plants and general stock. Now I would like to hear from other friends on this subject.

Gas tar I find the best thing I can use on greenhouse benches for preserving the woodwork; water lime the next. I have used gas tar on eight separate rooms. My plants always grew and looked well, as other parties can testify. My cucumber and melon frames I always tar inside and out. I would like to see the parties that had better luck. Never missed cutting the first week in May since I have been growing them. I have seen twelve cucumbers (Long Greens) growing from one light at one time. Surely gas tar did not hurt them.

[Gas tar often contains creosote, *then* it is dangerous]

TREE CULTURE.

Theoretical and Deductive Philosophies about it.

BY A. HUIDEKOPER, MEADVILLE, PA.

A New Englander told me the other day that a fellow coach passenger had called his attention to some white washed trees, remarking, "that shows the fools are not all dead yet; it is strange that farmer don't know that the bark of a tree is like the skin of a man, if you stop up the pores of the latter the man will die." This shows reasoning by analogy is dangerous, especially when we jump at the analogies. If the critic had been put to it he would probably have found little in common between the bark and the skin, except that of position; the functions being quite different. He might as well have said to a surgeon, do not cut off that man's mutilated feet, they are to him what the root is to a tree. Every body knows if you cut away the roots of a tree it will die.

I picked up the other day an essay on Orchards, which I thought sensible until I came to the advice not to scrape the loose bark from the trees, because if nature had not a use for the bark it would not be there. Now nature in loosening that bark is making an effort to get rid of it, and the scraper is an aid, not an antagonist of nature. A hostler would have smiled if the lecturer had said to him, do not curry that horse while he is shedding his coat, if nature had not a use for that loosely attached hair it would not be on the animal.

When I was full of boyish faith in what I found in print, I came across the direction of some theorist to prune fruit trees in June, be-

cause being then full of sap, the wounds would the sooner heal up. I applied the saw to some (fortunately worthless) seedling apple trees, and found the sunshine on the exuding sap produced canker and nearly destroyed the trees. In the autumn I saw a Rambo apple tree split in the centre with its weight of fruit. The half that fell down was cut away, leaving a large wound exposed to the frosts of the following winter. Very bad theoretically for its recovery; yet it started next year with a healthy healing process, which has gone on for thirty years, while the tree has in alternate seasons been bearing large crops of fruit. From this I concluded that "an ounce of practice is worth a pound of theory," and I have since done pruning that seemed necessary in the autumn, as soon as the main growth of the tree was over and the wood began to ripen—not hesitating to cut away limbs where they grew too thickly, or to shorten in for a season a vine or the shoot of a pear tree, when they were slender, in order to get a better base, nor to advise my neighbor when his vines had become a wilderness of self strangling complications, to cut away nine-tenths of the wood that the residue might ripen and bear better fruit. I even believed, that where an apple tree had a tendency to shoot up to such an altitude that a farmer could only look at its fruit, but would be unable to come to it without the aid of a balloon, that it would be well to cut off the entire stem of such a tree six or eight feet from the ground, and make it throw out strong laterals, which would give an open head to the tree, and place its fruit where it could safely be reached with a ladder, when my settled convictions were run into by something I saw in the *Gardener's Monthly* (I cannot find it as I write) about "all pruning being a shock to the vitality of a tree." This would be a very popular gospel among some of our lazy orchardists.

This elementary principle is reached, I believe, by deduction, the formula being as follows: A tree can be pruned to death; therefore any pruning is a shock to its vitality. I use the formula in a different way, thus: A plant can be watered to death; therefore any water is a shock to the vitality of a plant, and I find the rule has its limitations or contradictions in practice. Knowing how eminently wise is the *Gardener's Monthly*, I sought for some broader interpretation of its "shocking" theory, that I could subscribe to, and I think I find it in the ambiguity of its terms. Thus the "*Monthly*" teaches that when a tree is transplanted, the top should be shortened into a proper relation to the mutilated roots. Neglect of this is death—observance of it promotes growth. Now the vitality of a tree consists in its life and development, and the "shock" of pruning here referred to is akin to the shock of a galvanic battery when applied to a paralyzed limb, to which it is expected to restore healthy circulation and its normal functions. Vitality in plants and trees depends largely on relations to sunshine and shade to proper proportions of the top to the stem or the top to the roots. So I suppose the "*Monthly*" uses that word "shock" in a double sense; constructively, when the pruning shocks a tree into better conditions, and destructively when the work is ill-timed or too radical. The doctors tell us that a drug may be a narcotic or a stimulant, in accordance with the quantity of it that is taken. The *Gardener's Monthly*, I am pretty sure, will permit us to cling to our faith that pruning is beneficial or otherwise, according to the good sense or the bad judgment that may direct the arm holding the saw or the pruning knife. Will it not?

VARIATIONS IN NATURE.

BY C.

Just as I read thy paper on variation not caused always by domestication, I was coursing the memoirs of El Baber, the founder of the Mongol dynasty in India, (16th century) a great fighter, and a close observer of nature, and an ardent admirer of pretty flowers. In one of his military expeditions in the mountainous region N. E. of Cabul, he found immense numbers of wild tulips, of which he noticed twenty-five different kinds, and in one locality a hundred-leaved tulip, which appears to have delighted him much, both by its beauty and unusual form, and also because it was found only in that one locality of limited extent. The art of man evidently had done nothing in this case.

SHORT PURSES AND DUTCH BULBS.

BY R. W., LANSINGBURG, N. Y.

These few words are addressed to persons of limited means especially, for the reason that a supposition exists that to enjoy the delights of bulb culture necessitates the possession of a very *long* purse well filled, and this supposition frequently prevents that inquiry which would prove the perfect falsity of the previous impres-

sion. Thus many persons miss an innocent pleasure, a source of much real enjoyment, and pass the long, dreary winter without one flower to cheer and gladden their sense of the beautiful. To prove that a good collection of bulbs may be obtained for a small outlay of money, and to give the names of such as are best calculated to grow and bloom satisfactorily in the hands of the novice, is the object of the writer.

We will suppose our readers to be familiar with the fact that Dutch Bulbs are cultivated in immense quantities in Holland, where peculiarities of soil and climate, and the scientific culture given them, induce their fullest development. It is from Holland the world draws its supply of hyacinths, tulips, crocuses, narcissus, etc., and from Holland alone.

In selecting hyacinths, the bewildering confusion of names, the expansive lists of colors—dark blue, light blue, porcelain and lilac, red, pink, rose and blush—requires considerable courage on the part of the beginner in bulb culture to be attacked by him; but he need not be disheartened—nearly *all* good; some are better suited to his purpose than others, and these are equally found among the cheapest sorts as well as among the higher priced. Of course we wish white, pink and blue, and for our white variety let us have Grand Vainqueur. If we have one or a dozen, we can find none superior to it. Its especial recommendations are earliness, a tall stem, and truss of large size, bearing no tinge of color; pure and stainless as new fallen snow. For many years the writer has enjoyed its beauty and sweet smell, thinking it each year more beautiful than the year previous. In others of different shades there are many of great merit at a low price.

Crantatus for a light blue, is excellent. Always bearing a large truss, oftentimes an immense one, of flowers, good in shape, and of cerulean blue. It is fit to be the companion of Grand Vaniqueur—and is, for they bloom at the same time when planted together.

Charles Dickens, for a darker sort, is very superior. Blue, of medium shade, with a darker line through the centre of each petal; sweet and spicy in smell; always sure to bloom. We must indeed have at least one of this variety.

If we can afford another blue let us select **Prince Von Lux Weimar.** He is clothed in royal livery, and worthy of a place in our collection. We must have some pink kinds, for if but three roots are purchased, one must be white, one blue, and one pink, to be planted together. They look very pretty grown in this way, and take less room. Any of the following are as good as the best. Mdl'e. Hodson Norma, Mdlle. Zontman, and Bouquet Royal. The first named is *very* good, having a rich bright color and delicate fragrance. Norma has fewer bells to the truss than most others, but what is lacking in number is made up in size, each flower being very large. Do not plant Bouquet Royal with any of the others mentioned, as it blooms later than they. Planting in groups we wish all to bloom together, and did we expect Bouquet Royal to bloom with Crantatus or Grand Vainqueur, we would be disappointed. Any of the hyacinths specified can be bought of the dealers, at twenty-five cents singly or three dollars per dozen. And should you mention that you were making your first attempt at bulb growing, we would not be surprised if upon opening your parcel after getting home you found a little addition to your order, given by way of encouragement to you from the kind hearted dealer—for most seedsmen and florists are very kind of heart. Perhaps goodness and tenderness are exhaled with the fragrance which fills so large a portion of their domicil. We have often thought so!

Hyacinths have been given the first place, not because we think them so superior in beauty to others, but because being so sure of bloom, so brilliant of color and so sweetly fragrant, the preference is usually given them.

Polyanthus Narcissus, Tulips of some varieties, and Crocuses also do well with window culture, and are not less desirable than hyacinths, and as they are of low price, and so of interest to the short pursed lover of flowers, we will consider their merits at some future time.

Nothing has been said of cultivation, for where our beginner is fully persuaded to try his luck in bulb growing, he will find directions, which are very simple, in any of the catalogues published, and these he may procure without difficulty—without money and without price.

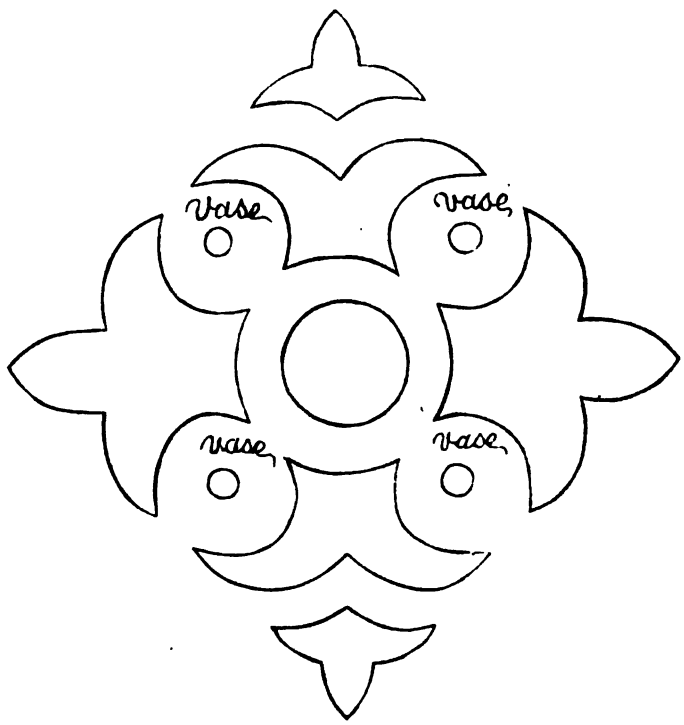
"THE PARTERRE."

BY W. B. WICKEN.

The writer has seen many pleasure grounds, which in many respects were laid out with taste and propriety, but with an almost total neglect, or at best, a poor attempt at the Parterre, which if tastefully planned and executed, adds greatly to the beauty and interest of any grounds.

Beautiful colors, arranged and contrasted in elegant and tasteful figures, in their combination, give an effect that is wanting when each are separate from the other. There is often seen on beautiful lawns, a circle described here, a diamond shaped bed there, and yonder perhaps a crescent, suggesting the idea they had dropped from the sky, and had been let remain where they fell, there being no attempt at symmetrical arrangement or system.

It is evident that the beauty and pleasing effect of any geometrical design is dependent on the relative bearing of one line on the other, as



there is certainly as much respective harmony in form as in sound. Perhaps the accompanying sketch of a few beds may help to demonstrate the ideas of the writer, and perhaps may set some of your fair readers thinking and planning, and so bring about a better state of things next season.

There may be some impression that similar beds would require an extra quantity of bedding stuff to fill them, but there are many plants that are planted in one corner or another and so on, that might be planted here with heightened effect. Of course flowers are beautiful in themselves anywhere, but it is possible for us to make use of this beauty in such a manner that we may derive greater pleasure thereby. Of course some judgment is required in planting, habit and color considered.

It is decidedly *not* the object of this paper to advocate laying out of pleasure grounds, with walks and general features in a style of geometrical precision. But there can be no place laid out in whatsoever style to which the parterre will not be an interesting and beautiful addition. If at all possible, the parterre should be laid out near the terrace or house, as its beauty is greatly enhanced when seen from some point above, as the piazza, terrace, or house, then all the shape in detail can be taken into the eye at once.

SUITABLE COMPOST FOR GRAPERY BORDERS.

BY MANSFIELD MILTON.

The cultivation of the grape vine has been practised by all nations from their earliest ages, and no fruit better repays good cultivation. Its delicious flavor and health giving qualities making it preferable to every other.

Although several species are indigeneous to

this country, and well-flavored varieties by hybridizing and crossing been raised, still none equal in flavor the different varieties of the European species *Vitis vinifera*. Very good hybrids have been raised from hybridizing some of the American species with the European species. We, however, believe that a greater success will yet be attained, and varieties raised possessing the hardiness of the American species and the delicious flavor of the European.

As the European varieties cannot with anything like success in the Northern States, be grown out doors, it is consequently necessary to cultivate them under glass. We shall, therefore, give a few remarks upon the compost best suitable for grapery borders.

Turfy loam should constitute the main part of the compost. The surface of old pasture, half decayed sods, or any good fibrous loam that has not been under cultivation for a good while being the most suitable. The more fibrous loam is, the more adapted it is for supplying for years vegetable nourishment. If of an inert state when put into the composition of a border, it soon acquires that sour, deadened state so detrimental for supplying suitable food for plants, especially grape vine roots, as they are very impatient in stagnant or inactive soil. But if of a fibrous nature, it for years retains that life and porosity so necessary for soil which has to be undisturbed for years. Another evil to guard against is chopping the soil too fine. We believe in leaving it, (especially loam that is to be used for a grapery or any permanent border) in a rather rough state. We have seen several borders with all the soil carefully sifted, one of the most foolish ideas, as no one of ordinary observant qualities but knows the best of the soil is taken out by sifting. Peat or muck in part is very good for borders if not of too spongy a nature, as it is then so apt for getting saturated with water, especially if a large quantity of it is used, and also converts the loam into the same inactive state. If the loam is good there is no need for using much peat, but if of a gravelly nature peat may with advantage be more freely used. Well decomposed leaf mould is better than bad peat; carefully clearing out all pieces of wood, as they create a fungus, which prove injurious to grape vine roots.

Manures for grapery borders are very numerous, each having its advocate, but from personal experience, and observing the results of the experiments of others, we think but few are really suitable. Plenty of manures there are that for a year or two create a most luxuriant effect, then as quickly in effect decay. The principle aim being to secure fertilizers not only suitable for causing a vigorous growth to the vines, but the essential qualities of which are of a lasting nature.

The best animal manure for this purpose is horse manure, which ought to be mixed with the soil in a half decomposed state, for if allowed to decompose, too much ammonia escapes—the most important component of the manure, as from it nitrogen is derived, which is the main food for the grape vine. The more ammonia therefore that pervades the soil, the more beneficial the results in procuring strong, healthy vines and foliage. Unless the vines be possessed of a strong constitution in the commencement of their growth, they ever after show the effects of early weakness.

Cow manure does not contain so large an amount of ammonia as horse manure, nor does it possess so warm a nature. It is also slower in action, and is apt for becoming a deadened mass when used in large quantities, but when mixed with horse manure, and well fermented, it then becomes highly serviceable, and thought by many when so used to be more beneficial than horse manure alone.

Pig manure, although containing more ammonia than either horse or cow manure, assimilates the latter in other qualities, and therefore should be used, mixed with horse manure. Without being well decomposed it should not be allowed to come directly in contact with the roots, being so strong as to generally destroy them.

Crushed bones is one of the most useful manures there is for grapery borders. If crushed into dust their effect is immediate, but not so lasting as when broken into one inch pieces. Not only do they supply vigorous growth to the vine, but also contribute suitable nourishment required for the enlargement of the fruit.

The dead bodies of animals in a crude state have been extensively used in the formation of borders. Few people using them once, and closely observing the effect, will do so a second time, and would advise those intending doing so to abandon their intention. Dead bodies in their crude state are more antagonistic than useful as food for vegetation, and not until an advanced stage of decomposition has been reached can plants derive any nourishment from them.

Those intending to use them for border purposes should decompose them before applying, by burying in loam or muck until well rotted, and mixing well by several turnings of the whole mass. One particular part to be attended to is mixing the soil for the border and manure thoroughly before either forming the inside or outside border. About one fourth of the whole mass should be animal manure, and we have advantageously used from eight to twelve barrels of bones for the borders of large houses.

We deem about fifteen feet wide and three feet deep sufficient for outside borders. Giving good drainage, for unless all superfluous water is carried off (allowing the compost to be of the best materials) only a few years will be sufficent in showing the evil effects of improper drainage, or both vines and fruit.

THE NEW VARIETIES OF GLADIOLUS.

BY GEO. SUCH, SOUTH AMBOY, N. J.

I notice in the December number of the *Gardener's Monthly*, a short article taken from the London *Journal of Horticulture*, in which comment is made regarding the new varieties of Gladiolus. The writer says, "From what I have seen here and elsewhere, there is but little new or good amongst them; indeed some of them are merely repetitions of the old sorts."

Allow me to say that this judgment is extremely unjust, and by referring to the *Journal of Horticulture* for October 24th, you will notice that the Rev. Mr. Dombrain, one of the very best authorities on the Gladiolus, says that "so far from thinking the sorts sent out last autumn the worst set we have had for some years, I think them one of the best."

Having grown all the new varieties but one, in my own garden, the following impressions may be of some value:

Antigone is certainly a very fine flower, being tender rose color, flamed with crimson, and with a very long flower spike.

Ariane has a white ground more or less blazed with rose and lilac; very handsome.

Alcyon and *Arsinoe* are good, but not very remarkable.

Antiope is a showy and very neatly shaped flower, its general tone of color being cherry tinted with orange.

Beatrix is admirable; a pure white ground, slightly marked with crimson lilac.

Celimene I do not so much like, however, as it is a shade of red, to my taste, not at all pleasing.

Didon is a flower that Mr. Dombrain considers only second rate, but as I saw it, no taste, however critical, could fail to be pleased with it. The throat of this flower is largely pure white, gradually deepening towards the edges into the most delicate lilac imaginable.

Jupiter is gorgeous, a dark and superb crimson, flaked with blackish crimson.

Minerva was the only one I did not see.

Ossian has a fine spike of rose colored flowers, tinted with deep violet and carmine; not sufficiently remarkable to be in the first rank, but decidedly fine.

Phœbus is very fine indeed, throwing up a flower spike of striking fire-red flowers, finely lighted up with white.

Virginalis is exquisite, being very pure white bordered with delicate rose color.

These few remarks I make in the spirit of justice merely as to the new varieties, and by no means intending to make little of the older kinds, many of which are of such superb beauty as to be quite unsurpassable in their peculiar sections.

I am from time to time called upon by customers to name what I consider, say, the best dozen kinds of Gladiolus, and it is a difficult matter to decide. Not long ago, replying to a letter from Boston, I named twelve that were all admirable, and the gentleman to whom I wrote expressed his surprise at not seeing the name of any one of the latest novelties mentioned in the dozen; but in reality there was no cause for surprise, the novelties being novel from the fact of being distinct from the other kinds rather than as surpassing them.

Such flowers as *Shakespeare*, *Meyerbeer*, and *Madame Desportes*—not mentioning others of former years—have such claims upon our admiration as will enable them to securely hold their own against all new comers. *Shakespeare* and *Meyerbeer* especially, stand distinct from all others, and to attempt a comparison between these and others, whether new or old, would be like attempting to compare a very fine peach with a pear of equally fine quality.

THE TANYAH—SPROUTS.

BY J. I. CLOW, M. D.

As the season for preserving this valuable esculent for winter use is approaching, a few suggestions, dictated by a long experience in their cultivation and use, may not be unacceptable to some of your numerous readers. As the fall up

to this time (October 7), has been unusually dry for this latitude, the roots have made but little progress toward maturity, but as we have just had a fine shower, and the prospect of more rain is favorable, it is not too late for them to make yet, as I have found that the roots make more from this time until the top is killed by frost than in all the preceding part of the season; and under no circumstances should they be dug until the top is entirely killed, for they continue to enlarge their roots after the frost has killed the leaves, and I never dig them until just before Christmas, and sometimes not until January.

I accidently discovered a plan of raising sprouts two winters since, which I have successfully employed, and for the benefit of those who are fond of them I will now describe. In digging a patch, and after separating the small roots from the large central bulbs, the latter were thrown into a conical heap and covered with dry weeds and dirt; and as I had housed those intended for eating in the potato house, those in the heap were left undisturbed until about the last of February, when, on opening the heap it was found that the bulbs had sent up large sprouts, which had penetrated the interstices of the whole heap, some of them a foot long and as thick as my wrist. By introducing a knife and cutting them off near the crown of the root I soon gathered a large mess, and had them cooked by boiling and then dressing with butter, pepper and salt, and all who partook of them pronounced them a first-rate dish. We continued to use them for a month Like Asparagus, as fast as you cut off the sprout it put out again, and by the time you go over the bank the first will be ready to cut again. Since that time I have made a bed of the bulbs by placing them on top of the ground, close together, as in making a potato plant bed, and after covering with a thick coat of dry weeds or corn stalks covering them with dirt five or six inches deep. The bed should be made in a place exposed to the sun, and if there was a coat of some fermenting substance, such as stable manure or cotton seed, it would be still better.

I had a bed of four or five barrels last winter, from which I used in February and March. About the first of April the roots may be taken up and planted in hills, and they grow as well as if they had not been sprouted.

[We take the above in regard to the common Caladium (Colocasia esculentem), from *Our Home Journal* of New Orleans.]

EDITORIAL NOTES.

FOREIGN.

The Rhubarb of Commerce. Prof. Baillon, in the recent session of the French Association for the Advancement of Science, says: Chinese and Russian rhubarb appears to be the result of a single species growing in Thibet, on a tract of land so inaccessible that it has been but seldom examined by Europeans. It is in latitude 40°. It is said that the Chinese have zealously guarded this plant from stranger eyes; but in 1868 a plant reached France alive, which flowered last year. It is "probably *Rheum palmatum.*" It is not herbaceous as in our species, but has "a stem one to two feet long covered with a black bark; is soft, humid, and containing yellow sap wood." The leaves resemble rather those of our common castor oil plant, than the common rhubarbs. The commercial article is not the root as we have all along supposed, but "the aerial stems and branches." It is found to be hardy in France.

The Quinoa—Chenopodium Quinoa. The *London Journal of Pharmacy* says that in Mexico this plant rates in agriculture in importance with the potato, maize and wheat. On high regions where rye and barley will not ripen, it is the chief object of agriculture. It grows three or four feet high, and bears an immense quantity of seeds. Its general appearance might be likenened to a gigantic spinage. It is used as "mush," the meal not being tenaceous enough to make bread. The leaves are eaten as spinage.

The Boldo. We note in our Western papers that rising importance is being given to this in medicine. It is *Peumus* boldus of Baillon, and Boldoa fragrans of Jussien. It has a distant relation to our sassafras.

Timber of the Yellow Cypress. A correspondent says that the timber of the *Cupressus Nutkaensis* has been found superior for ship building, and is likely to come into extensive use for this purpose.

The Mammoth Sequoia in England. As recently noted, the wild plants of California are found to be much more closely allied to the wild flora of England than are the wild species of the Eastern United States. So when the trees and plants of California are introduced to England they find themselves at home, as they will not east of the Rocky Mountains. A correspondent of the *Gardener's Chronicle* says of the mammoth tree:

"One of the finest plants in England is said to be at the Marquis of Huntley's, Orton Hall, in Hunt-

ingdonshire. Mr. Sharp reports it as being 86 feet in height; circumference of trunk at the base, 5 feet 8 inches; circumference of branches, 45 feet. As is well known, there are numerous others of nearly equal dimensions, as at Windsor, Boconnoc, &c. In Scotland, there are several fine plants; one of the largest is at Dalzell, Motherwell, Lanarkshire, the residence of Major Hamilton, M. P., which he reports as measuring '35 feet 6 inches in height; its girth at 3 feet from the ground is 4 feet 2 inches; it was planted about 12 inches high, in November, 1857,' consequently it must have made an average growth of nearly 3 feet for the twelve years it has been planted. There is a specimen of nearly equal dimensions at Murthly Castle. The best plant at Castle Kennedy is about 18 feet in height, growing in deep moss—a perfect cone, feathered to the ground, and in fine health. Judging from some specimens which I have seen in various parts of Ireland, it is highly probable that it will, in that humid climate, reach a size not to be surpassed in any other parts of these islands."

The Phylloxera Vastatrix. This terrible grape enemy is imitating the goings on of the Colorado potato bug, in giving a preference to another kind of food than that which first sustained it. Though said to be an American insect, it is giving its most delicate attentions to the roots of the hot house or European grape, and this to so ardent a degree that it is becoming a fearful scourge to the English grape grower. Some graft the vine on American bottoms, under the idea that the insect does not like so well its native root.

Roses for Greenhouse Flowering. The *Gardener's Chronicle*, in reply to a correspondent, gives the following list of six climbing roses for wall of greenhouse: Marechal Niel, Celine, Forestier, Charles Lefebvre, Gloire de Dijon, Belle de Bordeaux, Glory of Waltham. Six roses for pots: Beauty of Waltham, Madame Victor Verdier, Alfred Colombe, Madame Alfred de Rougemont, Anna Alexieff, Madame Willermoz; and in reply to another inquirer in regard to

Gardener's Situations in America, gives another correspondent the following information, for which we return our thanks:

"*G. L.* Advertise in the American *Gardener's Monthly*, published at 814 Chestnut Street, Philadelphia; or in any other of the American horticultural journals."

Vegetable Gardening in Rome. In and around all large towns, on account of the advantage of cheap and abundant fertilizers, vegetable gardening prospers. For some reason or other there does not seem to be much of this kind of gardening about the Eternal City; but the supply is drawn from other regions a long way off. The Rome correspondent of the *London Times* wrote:

"I was yesterday in one of these, hard by a gate of the city. Part of its boundary consisted of the loop-holed wall through which the Papal Zouaves fired on the approaching Italian troops in 1870. There was a glorious avenue of trees, interlacing overhead, a vault of foliage hundreds of yards long, a cool and delicious summer retreat. The damask Roses bloomed in profusion, and happy, bare-headed children were playing on the grass and in the shrubbery walks. It was like a warm spring day in England. At a corner of this pleasant domain I looked over a gate into a large kitchen-garden, which, properly cultivated, might supply a small town. But rhe Roman owner thought not of the advantage to be derived from it. It contained a large bed of gigantic Cabbages, rising rank amid a wilderness of weeds, and it contained nothing else. While reflecting on this deplorable *insouciance* and neglect, I heard the railway whistle, and saw in the distance the train from Naples, bringing crates of crushed vegetables for to-day's market."

Tree Planting in the Public Streets. In England street trees are generally the property of the city, and are planted by the authority and under the oversight of the city councils, instead of being all left toindividual notion as here. The city of Brighton has recently advertised for "five hundred planes, poplars, limes, elms and sycamores, fifteen to twenty feet high, for this purpose."

New Peas. Our fever in the way of grapes and potatoes, is about equalled by the English in new peas. By the immense interest taken there in new peas one might almost suppose all England lived wholly on peas, and that it was the pea, and not the turnip which paid the interest on the national debt.

Christmas Trees. The idea of the Christmas tree we have received from the Germans. It has now spread to the English. A few years ago no one thought there of the Christmas tree. The Holly and the Mistleto were all. Now the Christmas tree enters largely into the annual festivity.

Tuberoses. The climate of England is not hot enough to bring the tuberose to flowering perfection though they will bloom there after being once grown. Italy furnished the crop; but recently America supplies them largely, and our roots are found of the highest excellence.

Bud Variation. In an article in the *Popular Science Review*, Dr. M. T. Masters examines the whole subject, and concludes by saying:

"To sum up, then, we may say that there is no absolute difference between bud variation and

seed variation. The changes manifest themselves in the same manner and in the same organs, in the case of buds or seedlings respectively. The conditions, so far as we know, that produce variation in the one are the same that are effectual in the other. Lastly, apart from the different mode of origin, there is no essential difference between a bud formed as the result of fertilization, *i. e.*, an embryo, and one formed without the direct agency of the two sexes, *i. e.*, a bud."

The *Gardener's Chronicle* and the *Gardener's Monthly* are credited with the leading facts which have wrought out this conclusion.

EDITORIAL.

FLOWERS IN WINTER.

Many would have the luxury of flowers in winter, if they could do so without the heavy expense which usually attends their production. To such there is a good opportunity in the plan of growing half hardy plants in the natural ground, under glass. This is the method generally adopted by florists in producing the immense quantities of flowers now in demand in large cities. The results in flowers are wonderful, while the expense is comparatively small.

In Philadelphia one of the largest cut flower establishments is that of Pennock Bros. One of the firm, A. L. Pennock, has a large quantity of glass, devoted to winter flower growing at Darby, near Philadelphia, and we dropped in one day about the end of December, to see what we could pick up for our readers. The glass covers over three-quarters of an acre, and is on the southern slope of a gentle hill. On three sides of the square are the larger houses. In one are planted out chiefly Camellias, and in the uppermost—on the highest ground—the Roses. Of the varieties of Camellias, the light kinds, chiefly the old double white are grown. In the rose house, Tea roses chiefly rule; of these the most popular are Saffrano and Isabella Sprunt. There are also large quantities of the half tea, half noisette rose, Marshal Neil; but as a general rule noisette roses do not flower as freely under glass as tea roses, unless in situations fully exposed to direct sunlight. The space between the large boundary houses is filled by numerous parallel low narrow houses—so low that one cannot stand upright in them. They are made this low in order to get the plants in the ground near to the glass, which is essential to the production of an abundant bloom.

Each of these houses is devoted to one thing only. One has violets alone, another tree carnations, another mignonette; and so on with Poinsettas, Sweet Alyssum, Heliotrope, and the other staple items which all winter bouquets and baskets must have. The whole of this mass of glass is heated by four Pennock boilers—the invention of the proprietor, and with which all readers of our advertising columns are familiar. In the construction of these boilers, Mr. P. has aimed to use every atom of heat from the coal, so that none shall be lost, as so often is the case, up the smoke flues. In one which we examined here, the hot water pipes were so warm that one could not bear the hand on them, while the smoke flue, which rises direct from the furnace, and is not carried around the houses, as is so often done, was barely warm. The pipes are carried through the houses in every direction, and are laid along a few inches from the ground. The houses and heating arrangements cost about ten thousand dollars, but we believe have been found very profitable. This immense mass of vegetation, through its growing in the natural ground, requires very little expenditure of labor. Three hands manage the whole.

Intended solely for commercial purposes—to make money, there has been no attempt here to make things neat and substantial. No one who wished houses for his personal gratification, and to add to the attractions of his home, would want structures exactly like these; but with a very little extra cost, any one might have an elegant flower house, which would add immensely to their winter pleasures. What, for instance, could possibly be more interesting than a small house of Roses, or of Heliotrope, or Bouvardia, or Tree Carnations; or anything which will make continuous flower all through winter? There would be missing, to be sure, the charm of variety which the mixed greenhouse affords;

but then the planting in the ground is a permanent thing.

There is not needed any skilled knowledge in watering and general attention, for when one thing alone is grown, one soon becomes familiar with all its wants. We really do not see why these open ground greenhouses—little winter gardens they may be called—should be confined to florists. There is no reason why they should not be on every place—even more common than greenhouses and graperies.

REMARKABLE EXPERIENCE IN GRAPE GROWING.

Opposite to Mr. Pennock's cut flower establishment at Darby, two young men named Price have started in the cut flower growing trade also, and have several houses well filled with Roses, Heliotrope, Lilies, Spiræa Japonica, and other popular flowers of this character. Besides this they have a vineyard of about an acre, in which are most of the rare and popular grapes, growing in a state of luxuriousness rarely seen. What is most remarkable is that while such a usually delicate grower as Allen's Hybrid, here grows with the luxuriance and vigor of "a weed." The Concord, which usually does so well everywhere, is here the worst of the whole. We could scarcely credit our eyes that the long row of puny growth ever came from the Concord, while the row next to it, with the rankness of a wild fox grape should be our old friend the Maxatawney. This variety, the Brothers Price informed us, is one of the most delicious of grapes when grown on vigorous vines like these.

We have always insisted that grapes, as a rule, can hardly have the ground too rich or too dry in order to their greatest perfection. The Messrs. Price believe especially in the latter. The ground is naturally rolling, and water would hardly lay long on it. In addition to this there is a railroad cut of perhaps thirty feet deep along one side of the square formed by the vinyard. But besides these drying advantages, the whole is traversed by several well constructed under-drains, which render it impossible that water can remain in the ground long. But why is it the Concord gets no benefit from these conditions?

EDITORIAL NOTES.

DOMESTIC.

Agassiz on Darwin. At the winter meeting of the Massachusetts State Board of Agriculture, Prof. Agassiz laid himself out on Darwin to a considerable extent. As reported in the *Cultivator*, he did give the author of the *Origin of species* full and particular attention. It is the misfortune of Darwin that the wits have hold of him as they have of Horace Greeley, and what is Darwinism and what is not is about as hard for the public to understand as it would be were we to read Mark Twain's explanations of "What I know of Farming," instead of the original work.

It is pardonable when one of the mere public mistakes the teachings of a great man, but when a leader like Prof. Agassiz so errs, there is no justification. We quote what is said in reference to natural selection in regard to plants:

"I do not know how animals originated; a brilliant imagination that of Darwin; a very necessary faculty in the scientist. The sense I know too well to misquote him. Hasty generalizing of observation is Darwin all over. Natural selection is out of generation. Natural necessity, what is it? Do we find that only the strong beget families? Observe plants at the foot of the White mountains, where are large trees, and so up the summit, where they are mere shrubs. The weak may and do survive as well as the strong. Ignorance lies at the base of the discussion. I did not mean to argue the question, but to express my dissent from Darwin."

If the learned Professor had ever properly read or understood Mr. Darwin's works, he would know that Mr. Darwin never contended that mere size was strength. Mr. D. knows quite as well as Prof. Agassiz that the large trees are found at the base of the mountain, and small bushes at the top; and he contends that the small bushes are hardier, and that it is because they are hardier that they are found in these inclement places, to the exclusion of the larger trees. "The weak may and do survive the strong." Yes, but if there be war between the two, the weak will not survive long, and it is only in cases where there is this war—a *struggle for life*, as Mr. Darwin terms it, that he claims for this principle any agency in regard to the origin of species.

Whether Mr. Darwin's generalizations are wholly true or not is not the question here; but those who love trees and flowers are too much indebted to this great man for the many natural laws he has been the means of revealing to them, to take patiently the insinuations of Prof. Agassiz that he is a mere ignoramus, and ruled mainly by a "brilliant imagination."

Postal Laws. We have not yet seen the bill which has passed all branches of the Government in regard to postal relief, but no post-

master can act on it till the Postmaster General has had the chance of making decisions on "what it means." We have already seen that the attempt to be guided by the letter of the law instead of the spirit, led to all sorts of absurdities, and unless the law is worded so as to put decisions out of the question, it is by no means certain that there will be no more trouble.

There is, indeed, one point on which there probably will be trouble, unless the law is worded so as to avoid it. Merchandize must pay one cent an ounce, and weigh not over twelve ounces. If seeds or plants go for half these rates, and in four pound parcels, how are the postmasters to know whether the packages contain seeds or merchandize? Once we were not only allowed but ordered to write "seeds" or "plants" on the outside, and this gave the cue to the postmaster who could "open the wrapper without destroying," if he suspected things were not as represented. Without this cue there is nothing but to open every four pound package to see that it is not merchandize. Of course this will not be done, and all sorts of merchandize will steal through under the seed law. But the Postmaster General has decided that *any* writing except the address, subjects the whole package to letter postage.

But there are many other matters of detail which require looking to; and it would be well for some one to try, while we are about it, and get up a sensible law—one just to the Government, accommodating to the people, and easy to be understood. Why, for instance, if one finds he has sold out an item in a catalogue, and runs his pencil through to erase it from the list to indicate the fact, that should subject the whole catalogue to letter postage, does not seem clear to common sense, as the Government could not possibly be injured. Why a name or written number, or anything to indicate the name of the plant, seeds or cuttings sent, unless printed, should be forbidden, is equally incomprehensible; and that small packages of seeds enclosed under one wrapper—every little pinch and grain must be in an "open paper," not pasted or gummed to make it secure against getting into the mail bag, seems of no benefit to any body, nor of any effect to any purpose but to obstruct a branch of the postal service that one would suppose the intention was to encourage.

Above all, these laws should be clear. Some of our friends may think we have borne rather hard on this matter, but other papers have had more trouble to understand the rulings than we have. The *Cincinnati Gazette* says the Postmaster General himself is "bothered" to decide things, and gives the following as a specimen of some of his recent "rulings:"

"A postmaster is not permitted to make any material change in the site of his postoffice without affixing a two-cent stamp for every two ounces He can charge double postage for sight of the postmaster.

Shirts may be mailed at the rate of two cents for every two ounces of shirt. If the owners' name is on the shirt, letter postage must be charged. This rule is indelible.

A subscriber residing in a county in which a paper is printed, can take the paper, provided he pays in advance, and urges his neighbors to subscribe. If he does not live in the county in which he resides, and the paper is not printed in the same county in which it has its press work done, then the county must pay double postage on the man—we mean a two cent county must be affixed to every postage stamp—that is to say, every two ounces of a man—we mean the paper county—the—man—well, we must leave this ruling to the discretion of the postmaster."

Japan Wax—Rhus Succedanium. This wax is coming into extensive use, and is the product of the plant we have named. If it could be cultivated in the United States it would be of immense value. The writer of this paragraph was fortunate in raising two plants from seed of the Perry expedition. One was left out to test, but was killed by a Philadelphia winter; the other was sent to Mr. Berckmans, of Augusta, Ga., in 1859 or '60, but whether still in existence or not we do not know at this writing.

Flora of California. Dr. Brewer is engaged on this good work. It is in such a state of forwardness as to be probably ready for the press by the end of the year. Prof. Gray and Mr. Sereno Watson are lending a hand, so as to hurry on the work to an early completion.

The Apple Worm in California. A few specimens of the *Carpocapsa pomana* have at length been captured in California. It is believed that the present comparative immunity from eastern insects, will not long last in the Golden State.

Zanthoxylon fraxineum for Hedges. We see the prickly ash named as a hedge plant. It is thorny enough, but surely it cannot everywhere be as troublesome in the way of suckers as it is wherever we have known it, or no one would be found to say a word in its favor.

History of the Blood-Leaved Peach. The *Rural Sun* seems to imagine we gave the legend of the origin of the blood-leaved peach, which we found floating about in the newspapers, as a matter of fact. It will be remembered the story went that a dying General ate the peach from the stone of which this tree sprung. The *Rural Sun* shows that this could not be, as the battle of Fort Donelson was fought amid the snows of February, when peaches were not about.

We hardly supposed when we gave the current story, that any one would take it in earnest, much less have thought it worth while to "explode" it. It seems like undertaking the job of examining the facts in relation to the Red Rose having sprung from the blood of Venus, when a thorn pierced her foot in her hunt through the woods in the search for Adonis.

As a matter of history, however, we should like to know where the original tree did spring. The *Rural Sun*, quoting the *Rural Carolinian*, says it originated "in Mississippi in 1870." If we are not very much mistaken, Mr. Hatch, of whom we first heard of it, told us it grew at Fort Donelson, so far in accordance with the legend, and of course the only part we regarded as true.

Single and Double Flowers. Some time since the *Rural Carolinian* had the following paragraph:

"Why do some of the seeds from a double flower produce single flowering plants, while other seeds from the same flower produce double flowering plants? And why, further, do we sometimes get nearly all double flowering plants from a planting of seeds, when another planting from the same package, made at another time, or in another place, gives us nearly all sing flowers? This has occurred repeatedly in our own experience. For instance, last year we had one of the finest displays of double zinnias that we ever saw, but few of our plants producing single flowers. This year, we planted some of the seeds left over from the same packages, some from the finest double flowers of last year, and some also received from trustworthy seedsmen. The results from all alike were, with very few exceptions—not one in a hundred—single flowering plants. Who can explain this? Can not our friends Berckmans, and Ravenel, or the accomplished editor of the *Gardener's Monthly* give us some light on this point in vegetable physiology?"

Not wishing to "take the job" out of the hands of the other friends named, we have left this lie some time, but as they show no disposition to take hold of it, there may be no harm in suggesting that the papers on the "laws of sex," by the editor of this journal, explain the circumstance referred to. It is there seen that double flowers are grades towards masculinity, and that whether a seed germ becomes of one sex or the other depends on the amount of nutrition it is able to assimilate in a very early stage of life. The lowest power of assimilation produces the double flower.

In one capsule are many seed germs. Some of these will not have the life principle so thoroughly incorporated in them as the others through a defective supply of a certain kind of nutrition, and will yield double flowers sooner than others. Without perceiving this law as clearly as it has been since demonstrated, those who have had to do with raising double flowers have yet often approached it. For instance in raising double stock gillies, seed being saved from single kinds, it has been found that the first flowers formed produce chiefly double flowers, and the last chiefly single. This is an experience of more than thirty years. The reason is that on the first formation of flowers, the plant is still devoting much of its nutrition to plant growth. After that is satisfied, it gives its whole attention to perfecting seed.

It is curious to notice in the production of double flowers, how when nutrition fails, it effects the male organs of a flower before the female. A stamen for instance is a higher organized body than a petal; indeed it is formed out of a petal, which in its turn is formed out of a leaf. But when there is not power enough to turn the petals into stamens—that is when the flower becomes double, as it is called—the pistil will nevertheless remain perfect. Hence we can often raise seed from double carnations, double roses, double hollyhocks, and so on, if we can only obtain foreign pollen to fertilize them.

Whether or not any weakening influence on the seed, *after it has once been fully formed*, will have any influence in producing double flowers, we cannot say from our own experience; but there used to be a belief prevalent among English gardeners that old seeds of the Balsam, or "Lady's Slipper," would more certainly produce double than single flowers.

OBITUARY.

LAWRENCE YOUNG.

This distinguished horticulturist died on the 23d of December, at Louisville, Kentucky, in the eighty-second year of his age. Mr. Young was not well known to our readers, as he ceased contributing to the horticultural press with the pass

ing away of the *Horticulturist* from Downing, by his death; but most of us who are no longer on the green side of life, will remember how much profit in the years gone by we derived from the writings and labors of Lawrence Young. In the earlier years of the American Pomological Society, Mr. Young took an active part in its successful working, and the only time the writer had the pleasure of his personal acquaintance was at one of the Pomological Society's meetings in Philadelphia, twenty years ago. It was, we believe, the last he ever attended. In his own immediate vicinity, however, he labored effectively for horticulture up to the time of his death. The Kentucky Horticultural Society is one of the live societies of which we have much too few; and very much of this useful activity has been due to the influence of Mr. Young.

He was born in Caroline county, Virginia, but from three years old was brought up in Kentucky. He worked in early life on his father's farm, educating himself in a great measure, finally becoming a school teacher. At length he devoted some time to merchandize, and the study of the law. At thirty he married, and after finishing his university studies, again opened a school; but finally gave up all for farming and orcharding. When the *Western Rurallist* was started, he admirably edited the horticultural department, and up to quite a recent date contributed to other papers in his vicinity. He was buried on Christmas day, and leaves three sons and one daughter, besides a name which will long endear him to the horticulturists of what may almost be called his native State.

SCRAPS AND QUERIES.

NOTICING ADVERTISEMENTS.—We have occasional offers of "good pay" if we will "notice" advertisements in our reading columns; and one firm, very respectable of course, refuses to advertise in the *Gardener's Monthly* because we will not do so. Not one line that has ever appeared in the body of the *Gardener's Monthly* has ever been paid for directly or indirectly, and we do not mean that it ever shall be. At the same time it is not fair that one shall have a free notice and another none. Equal justice to all our advertisers is our motto. We trust our friends will spare us the pain of declining "notices." We think every one reads our advertisements, so that the notice is superogatory at all events.

SUBSCRIBING TO THE GARDENER'S MONTHLY.—The publisher desires to thank the many subscribers, who with their renewels have encouraged him by kind expressions of their regard for the magazine. In this connection one of the most gratifying events is the unusually large number who on account of the war, misfortune, or some other cause, had to cease subscribing to the *Monthly*, have renewed again with frank confessions of their feeling of loss by its non-appearance all the long years. After all, the *Monthly* is just what the subscribers themselves wish to make it. If there be any topic neglected on which any one reader desires information, a line to the editor will always bring it, if in his power.

BOILING LOCUST SEED.—A correspondent asks if it is proper to boil the seed of the yellow locust before sowing. Boil the seed! What a question! He says he is told so. If they ever grew after, the water must have been boiled on the top of Pike's Peak, where they say water boils at a temperature not so very many degrees above the freezing point! But we do not recommend it here. Pour boiling water on the seed if hard and dry, but do not boil in this part of the world.

PLANTS IN BLOOM at Rhosynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia, Pa.

NOVEMBER, 1872.

HARDY HERBACEOUS PLANTS.

Anemone	Japonica alba, Windflower
Chrysanthemum	Indicum var. Chusan Daisy
Helleborus	niger, Christmas Rose
Lychnis	dioica fl.alba pleno, batchelor's [button

EVERGREEN HERBACEOUS PLANTS

that enliven the dreary winter walks in the pleasure grounds, by their curious and beautiful foliage.

Ajuga	reptans, Bugle
	variegata
Acorus	calamus variegata, sweet Rush
Arabis	alpina, Wall cress
	variegata, "
Aubretia	purpurea
Arum	maculatum, Wake Robin
Dianthus	barbatus, Sweet William
	Caryophyllus, Carnation
	plumarius, Pink
Helleborus	niger, Christmas Rose
Lilium	candidum, Lily
	variegata aurea
Pachysandra	procumbens
Pyrola	elliptica, false Wintergreen
Saxifraga	Andrewsi, Saxifrage (Irish)
	crassifolia
	sarmentosa, Wandering Jew
	umbrosa, London Pride
	virginiensis

GREENHOUSE AND CONSERVATORY.

Abutilon	striatum, Chinese bell
	vexillarium "
	grandiflorum "
Ageratum	mexicanum, Blue Mist
	coelestinum, "
Asclepias	curassavica, Swallow-wort
Bouvardia	triphylla
Browallia	Jamisonii
Cactus	speciosum
Camellia	fl. alba pleno, Camellia
Cestrum	regale
Cuphea	Danielsiana, Cigar flower
	platycentra, "
	strigulosa, "
Cypripedium	insigna, ladies slipper
Daphne	odora, spurge laurel
Eupatorium	fruticosum, white mist
Fuchsia	coccinea, var., ladies eardrop
Geranium	Zonale, var.
Jasminum	grandiflorum, Jasmine
Justicia	carnea
Malcomia	maritima, Virginia stock
Olea	fragrans, Olive
Oxalis	floribunda rosea, Sorrel
	alba "
	grandiflora, "
	lutea, "
	versicolor, "
Primula	sinensis, Primrose
Russellia	junca
Salvia	coccinea, Sage
	involucrata, Sage
	splendens, "
Serissa	foetida
Solanum	Jasminoides
	variegata
Tropaeolum	Lobbianum, Indian cress
Thea	viridis, Tea tree
Veronica	speciosa, Speedwell
	Andersonii, "

The garden rocket, (Hesperis matronalis fl. pleno albo) or Dames Violet, an old favorite hardy herbaceous plant of England and Ireland, recently introduced here, is well worth a little attention as to its culture. I will give my experience with it. It being a true biennial in its single state, (commonly called Gilliflower), of a purplish red color, bearing seed and sowing itself profusely. Therefore the subject of my remarks being double flowered, and bearing no seed, it requires to be propagated every year by side shoots or cuttings off the old plant in early spring or fall. I found that when the plant was well established, not being transplanted or parted, it grew coarse and straggling, but by parting the crowns every spring as soon as it shows signs of growth, I have beautiful compact spikes of its double white clove scented flowers, rivalling the Pink or Carnation, and very showy.

MCARTHUR, SON & CO., MERIDIAN, MISS. —The publisher begs to return thanks to the above firm for a complimentary notice of the *Gardener's Monthly* inserted in their nursery catalogue.

ARALIA SPINOSA.—*A. F. S., Moline, Ills.*, writes: "I enclose herewith a few seeds for name. They grew upon a small tree, perhaps now about eight feet high, and at this time there is not the sign of a limb upon it, they having all fallen off, to come out again in the spring. The limbs and the side limbs, or more properly speaking, the foot stalks of the leaves are attached to the tree by clasping around the stem or stems, and when frosts come they loosen up and fall to the ground. The body is covered with short blunt thorns. Having been a subscriber to the *Gardener's Monthly* from the beginning, I take the liberty of addressing you. Please give us a name and somewhat of its character. The flower grew upon the extreme top of the tree; was not very showy, although large as a bucket, and grew very much like the elder flowers."

[This is the Aralia spinosa, or Hercules Club. Also called angelica tree. It is one of the most

striking objects one can possibly have on a lawn; inferior in many respects to some tropical plants yet more popular. It is liable to annoy a little by suckers, and should be planted where these will not be very objectionable.]

THE CENTENNIAL EXHIBITION.—*Mr. Akers* says: "Mr. Morrell, who is Chairman of the Executive Committee of the Centennial Commission, informs me that the Committees which will be charged with the details of the exposition, have not yet been appointed. He also assures me that the great horticultural interest shall be recognized in all its importance. This I can well confide in, as I know him to be ardently devoted to that interest himself."

[The committee to which we had reference was the local committee of finance. Sub-committees were appointed to represent every branch of trade and all the professions. There were committees on agricultural implements, on seeds, on agriculture, and so forth, but we believe no committee for horticulture. It was perhaps a matter of little consequence in this stage of the proceedings, as horticulturists are found in every other calling, and besides these committees were merely for the question of local finance; but we are very jealous of the position of horticulture in this great affair, and feared even this small slight might be but the prelude to greater ones. We do not want to feel that horticulture is but the tail end of a seed shop.]

THE CURCULIO.—A Johnstown, Pa., correspondent says: "Mr. Southwick's experience in regard to the curculio is fully corroborated by results here. We had a most extraordinary crop of plums last summer. Hope the "little turk" will stay frozen. He is getting another good freezing this winter, only there is plenty of snow to save his infant jacket."

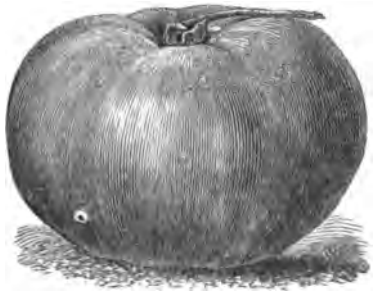
THE MERCURY IN THE ALLEGHANY MOUNTAINS.—A correspondent from Johnstown, says: "The mercury in the thermometer made the following record this winter: December 22d, ten degrees below zero; December 24th, five below; December 25th, fifteen below."

BEST WHITE AZALEA.—*M., Coudersport, Pa.* writes: "In this far away region, horticulturally considered, you may not expect to find gardening highly appreciated, but it is growing more than you may imagine, perhaps. I think I shall put up a small greenhouse myself, this summer. Shall not have room for many articles. I shall try to grow Camellias, and especially want a real good white Azalea. Which one would you recommend to me?"

[We think, taking all things into consideration, perhaps the azalea indica alba is still the best. Mr. Buist is one of the best authorities on azaleas. If he thinks there is a better, we should like to know.]

OUR INQUIRERS.—Our last number must have been an unusually satisfactory one, if the small number of queries on hand this month be any test. But we may say to our readers that this column is always at their service. If one want to know nothing of anything but grass or cucumbers, still we are ready to tell even what we may know about these.

CANADA VICTOR TOMATO.—While sending the engraving of the Marblehead Squash, Mr. Gregory sends us a sketch of a new tomato, of which he speaks very highly, as near the perfection of earliness and beauty. We know nothing of it from our own experience.



WHEN THE LAW GOES INTO EFFECT.—So many enquiries reach us as to when the new law goes into effect, that we applied to the Hon. A. C. Harmer, who, as we have before said, has taken a warm interest in the matter, to get the information for us. The following is the letter in response to Mr. Harmer's query:

SIR:—Please inform your correspondent, Mr. Thos. Meehan, that this Department, though not officially notified, is advised that the President has now signed the bill recently passed by Congress, whereby seeds, bulbs, roots and scions, are classed with printed matter in regard to postage and weight of packages—that is, one cent for each two ounces or fraction thereof, limited to four pound packages—and the same is now the law. Postmasters will be advised as soon as

possible after the official notice from the Department of State is received.

The same law provides that all third class matter must be prepaid in full by stamps affixed at the office of mailing, otherwise the same shall not be forwarded.

Very respectfully,

J. W. MARSHALL,

1st Ass't P. M. Gen'l.

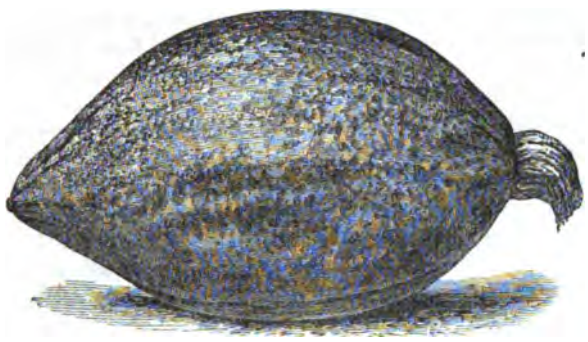
Hon. A. C. Harmer,

House of Representatives.

Since this was in type, "effect" has be taken.

THE HERSTINE AND SAUNDERS RASPBERRIES.—It is our habit to give our readers all the information to be had in regard to any horticultural topic, whether the information accords with our own experience or not. In regard to the raspberries named above, our experience is in favor of their extra productiveness, but Mr Purdy says in his *Fruit Recorder*: "Judging from the crop and fruit on plants set one year ago last spring, we cannot see wherein they excel either the Clark or Naomi, while neither of them have shown so much fruit on our plants as either of the last two named sorts."

MARBLEHEAD SQUASH.—In a recent number of the *Gardener's Monthly* we had to speak favorably of this variety from a sample furnished by Mr. Gregory. We now give an engraving furnished by Mr. Gregory, which will enable those who grow it to identify the correctness of the variety.



LARGE HICKORY NUT.—A Connecticut correspondent says: "I planted a hickory nut from Illinois, twenty or thirty years ago. It was, I think, two inches through; it is now twenty-five feet high, eight or nine inches in diameter. Last June I cut a ring around it quarter of an inch wide, leaving four points, (say eighth of an inch), equally distant uncut to insure safety. It did not heal over, but the sap run some, keeping the lips of the wound wet and raw. The upper lip enlarged some. Several of the top shoots dropped their leaves early. What species is it with so large a nut? Will it bear next year with the upper lip enlarged so little?"

[In this section the large fruited varieties of the hickories belong mostly to the shellbark, *Carya alba*, though very often they belong to *Carya sulcata*, which after all is probably but a "development" from the shellbark species, and not very far advanced at that.]

H. T. WILLIAMS.—Among the most welcome visitors to the Fruit Growers' Society at Reading, was Mr. H. T. Williams, editor of the well known *Horticulturist*. Mr. W.'s cordial suavity of manner, and willingness to contribute all in his power to the pleasure and instruction of his fellow horticulturists, always make his presence gratifying to the members of these societies. He reports the *Horticulturist* as in a flourishing condition, and his new venture, the *Floral Cabinet*, which by some accident has not come to our book table, as being a par-particular favorite with the ladies of the country. Few men better deserve success than Mr. Williams, and his very numerous friends will be glad to know he is obtaining it

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NEW AND RARE FRUITS.

SEEDLESS APPLE.—*J. Donaldson, Kittanning, Armstrong Co., Pa.*, says: "I send you this day two samples of a seedless apple, which I consider a valuble acquisition to our list of American apples. It is a regular and prodigious bearer, long keeper and vigorous grower; it is worthy of general cultivation, and saves much time in preparing it for the table, as it needs not to be cored. The flower is without petals, and apparently without pistils. The quality of

the apple is left for you to decide from specimens sent."

[We regard this as a valuable acquisition for the reasons given by our correspondent. There is no "core" to speak of. The flavor is excellent, something akin to that of a Newtown Pippin, from which it may be a seedling. It is, however, smaller than an average Newtown.

Besides its commercial value, it has some intellectual interest. It is no wonder that it produces an "apple" without having perfect sexual organs, for many things are known to do this. The Osage Orange will produce seedless balls, when there is no pollen near to fertilize it with. The cucumber also does this. But this gives us a capital illustration of the doctrine that a fruit is but a bundle of altered leaves. We see that the outside of the apple is made up of five leaves which end in the usual 5 calyx sepals; but the union is so perfect that no one can trace any distinction. When we cut an apple through, there is always seen a fibrous incurved line midway between the core and the rhind, terminating in the calyx basin. In this we see that this line is capped by five hard gland-like processes, which are all that represent the petals; these are divided some distance, showing that five leaves went to form the interior layer, which is bounded by the fibrous line in the apple. Generally there seems to be a rapid absorption of the cycle or cycles which go to form the stamens,—but the carpels—which form the set of five divisions known as the core, usually takes a new start, and make the core cavities. In this case they are nearly abortive, something having interfered with the nutritive process necessary to their development.

THE EARLY BARNARD PEACH.—Mr. Flagg says: Two points in this confusion we think we have settled to our own satisfaction. First, that the true Yellow Rareripe is a peach ripening a little later than or with Early Crawford, a deeper colored and better peach. Secondly, that Early Barnard is a well marked variety, differing from the Yellow Alberge in being of better quality and having the dark brownish red color noticed by Thomas. It ripens before Early Crawford. But we confess to being at sea as regards the Ye low Honest John.

THE "POND PEAR."—This is the name given to a new pear by Dr. S. A. Shurtleff, of Brookline, Mass. The Dr. has been introducing new pears for many years, some of which are valuable acquisitions to the list of American varieties. The "Pond" is of medium size, has a rich, sugary flavor, and would be highly esteemed by those who prefer sweet pears to those of a sub-acid or vinous flavor.—*New England Farmer.*

PEAKE'S FALL apple is described as an October apple from South Carolina, resembling the Rawle's Janet in tree and fruit. The *Prairie Farmer* thus describes it: Shape flattish-conic. An ordinary specimen of the present year measures 2¾x2¼ inches. Calyx medium, rather open in a shallow and small basin. Stem rather long and slender, in a deep and open cavity. Flesh white, brittle, very juicy, of a sprightly acid, and good to very good in quality. Capsule rather small, closed, with rather small brown oblong and not plump seeds. Season here November rather than October, and would probably keep through December. A little farther North it would become a Winter apple. Tree vigorous, but not a strong grower thus far.

RED HAWTHORNDEN APPLE.—Though so old an apple, the Hawthornden is yet a *rare* one in collections, and merits notice here. The following correspondence will have an interest. It is a very profuse bearer: "I notice an article in th *Rural New Yorker*, Dec. 7, concerning 'Red Hawthornden.' Why do you call a *white* apple, with an occasional blush cheek, 'Red Hawthornden?'' I have grown the Hawthornden with great satisfaction for many years. It is a great producer of very uniform fruit, and sells well in market for culinary use, but is not so good for the table as the Maiden's Blush, which it closely resembles. It relieves itself of its surplus fruit somewhat prematurely, but always perfects a Fall crop. But it is in no respect entitled to the *prefix* 'Red' to its old-fashioned name. Better continue to call it plain Hawthornden, and then we shall understand what apple we are talking about.—I. D. G. NELSON.

If our good friend will read the article to which he refers, again, he will see that we were quoting from an English journal a description of a fruit known locally in England as 'Red Hawthornden;' and if he compares that description with Downing's description of 'Hawthornden,' or the old 'White Hawthornden,' he will see some dissimilarity, although the two apples may possibly be the same. But in England the the apple is known as Red Hawthornden, and as such we gave it.—*Rural New Yorker.*

NEW AND RARE PLANTS.

The following new plants have recently been illustrated in some of the European magazines.

ALTERNANTHERA AMABILIS.—Amarantaceæ. This is one of the finely-colored dwarf bushy-growing foliage plants used for color massing in geometrical gardening, and which has been so remarkably beautiful at Battersea and elsewhere during the past summer. It has considerably larger and more richly colored foliage than the species already known (spathulata, &c.); the leaves are of an elliptic acuminate outline, greenish in some stages, with the principal ribs stained with red, but under free growth becoming almost entirely suffused with rose color mixed with orange, the midribs continuing to be of a deep red hue. It is a native of Brazil, and has been introduced by M. A. Verschaffelt.

AMPELOPSIS DISSECTA.—Vitaceæ. A slender and very elegant free-growing hardy climbing shrub, furnished with long reddish branches, which bear palmisected leaves having pinnatifid segments, so that the leaves closely resemble in form the fronds of Litobrochia pedata. It bears small roundish, bluish, glaucescent fruits. Two or three varieties of the plant have been introduced from China to the Jardin du Museum at Paris.

COLLINSIA CORYMBOSA.—Scrophulariaceæ. This pretty dwarf free-blooming annual is of a much-branched habit, and has ovate-stalked leaves, the upper ones becoming sessile under the umbel-like inflorescence of numerous white and blue flowers; the lower lip is white, three-parted, larger than the grey-blue upper one, its middle lobe is compressed or folded, while its two lateral lobes are flat and spreading. Native of Mexico, and introduced by Messrs. Haage & Schmidt.

CROCUS SCHAROJANI.—Iridaceæ. A pretty, hardy, autumn-flower bulb, related to C. Suwarowianus, and producing its blossoms before the leaves appear. The flowers are of a deep saffron color, and are developed in the early autumn months. It is found in the western Caucasus, and has been introduced to the St. Petersburg Botanic Garden.

DICENTRANTHERA MACROPHYLLA.—Acanthaceæ. An ornamental stove shrub, with very large obovate-lanceolate leaves, and terminal erect spikes a foot long, of handsome bilabiate bell-shaped flowers, which are rosy purple externally, and almost pure white within. It comes from tropical Africa, and has been raised and flowered in the Glasnevin Botanic Garden.

PRIMULA JAPONICA.—We have given before notices of this remarkable Primrose. It will do no harm to reprint what Mr. Cannell says of it after another year of trial.

Primula japonica, which has been recently figured in the *Florist and Pomologist*, *Floral Magazine* and *Botanical Magazine;* the opinion of every-one who has seen it in blossom may be expressed in one word "lovely!" When exhibited before the Floral Committee of the Royal Horticultural Society, it was voted a First Class Certificate by acclamation.

The *Florist* says of it,—"Hail! Queen of the Primroses; for so its introducer designates the lovely flower we now figure, which is hardy as a peasant, resplendent as a princess. It is just ten years since Mr. Fortune met with it in Japan, a basketful of blooming plants having been brought to his door; they were, of course, secured, but the journey home was too much for them, and despite every care none reached England alive. Ever since that time, endeavors have been made to introduce this lovely plant, but till now without success, the seeds having been found to loose their germinating power in the course of transmission to Europe. At last, however, perseverance has heen rewarded, and from seeds imported by Mr. Fortune, plants have been raised in the establishment of Mr. W. Bull, of Chelsea. Our gardens have thus secured a perfectly new, thoroughly hardy, and exquisitely lovely Primrose, one which is really valuable on account of its intrinsic beauty. Of the hardiness of the *Primula japonica* there can be no doubt, since plants which have been standing all the winter, fully exposed, in the trying atmosphere of London, are perfectly healthy, and came into bloom about the middle of May, some two or three weeks later than the plants which had been potted and flowered under glass."

Its Treatment, &c., by an Amateur.—This hardy new Japan Primrose is one of those genuine acquisitions to our floral wealth that occurs only at rare intervals, and in the hands of hy-

bridizers it will probably become the parent of a series of new varieties that will play an important part in the spring decoration of the flower garden. A Primrose growing to the height of 18 inches, and producing whorl above whorl of flowers of a rich magenta color, each flower measuring from half an inch to an inch in diameter, is likely to reverse all our previous notions of Primroses. The sentiment of humble beauty universally attached to the common Primrose cannot be applied to this variety, which may be said to assume magnificent proportions. It is *par excellence*, a plant for the amateur, for its great beauty, its hardiness, and its free-seeding qualities, whilst its culture is of the easiest kind. Strong plants should be at once planted in any deep rich garden soil, and although it is believed to be perfectly hardy, it might be well, until a stock is in hand, to plant it where some slight natural protection is afforded. By midwinter the whole of the large handsome leaves will have decayed, and a few only of the smallest will be left to mark the heart of the plant; this being its habit, no uneasiness need be felt, but when in this state, should the weather be unusually severe, it may be well to invert a pot or pan filled with dry leaves over the crown; immediately the weather moderates this must be removed. A plant treated in this manner last winter threw up a very strong flower stem in the spring, and was altogether the finest we have yet seen.

It produced eight whorls of its lovely flowers in succession, one above the other, and from it was gathered nearly a quarter of an ounce of good seed. Coddling should be strictly avoided, for the only failure of a good bloom we have noted resulted from over carefulness in the matter of protection. The most effective way of propagation is by division of the plants after blooming, as it secures strong blooming plants for the next season. In most cases every bloom spike will cause the plant to multiply by two. When these offshoots are of a good size the plant should be taken up and divided, each crown with its own portion of roots. Replant in good soil in a half shady border, from whence, when the plants are well established, they should be removed with large balls to the situation in which it is desired they should bloom.

JUNIPERUS CHINENSIS AUREA, *Young's New Golden Chinese Juniper.*—The *Gardener's Chronicle* says: "Certainly one of the foremost places amongst golden leaved Conifers must be accorded to Mr. Maurice Young's Juniperus chinensis aureus. The Chinese Juniper is well known as one of the hardiest and handsomest of Coniferous shrubs, and when we state that the novely just referred to is the exact counterpart of its parent, in all but its color, and that that color is equal at least in richness of hue to any golden Conifer hitherto known, but little further mention of it is needed. We may however add, from a recent personal inspection of the stock, that it is thoroughly constant. Not a plant amongst the entire stock shows the least tendency to run back, but all, whether infants of 6 inches or adolescents of 3 feet high, appear in the same aristocratic 'cloth of gold' array. * * * Our notes indicate that the propagated plants take on a close pyramidal habit, and have moreover the twofold character of foliage which is seen in the parent, and that the color of the more prominent portions of the plants as bright as the tint of a Golden Holly. Taking these various points into account, and coupling with them the free-growing hardy character of the plant, there is no exaggeration in pronouncing this novelty to be one of the best and most desirable of ornamental Conifers."

PERPETUAL FLOWERING TREE CARNATION, LA BELLE.—The forerunner of a new race of varieties. The flowers of the purest white, are very large and smooth, perfectly double, and delightfully fragrant, and are produced, all the year round, in such profusion that one or more plants should be grown wherever cut blooms are in request.—*Gardeners' Magazine.*

THUJOPSIS STANDISHII.—Introduced from Japan in 1861 by Mr. Fortune, who discovered it growing near Yeddo. It somewhat resembles the T. dolabrata in its general appearance. Its leaves are smaller, of a bright glossy green above and dull glaucous color below; its branches are slender and pendulous. It is quite hardy, and, like its congener, of slow growth, at least when young, requiring apparently similar treatment to T. dolabrata.—A. FOWLER, Castle Kennedy, in *Gar. Chronicle.*

PINUS PARVIFLORA.—This is one of the pretty, small-sized, coniferous trees recently introduced from the northern parts of Japan, and although not likely to prove of any value in this country for its timber, it promises to be of some

importance as an ornamental tree, particularly in situations where a larger-sized one would be inadmissable.

When seen in good health it has a pleasing appearance, although it is rather stiff and formal in habit; its branches are horizontal and spreading, its foliage is glaucous on both sides, twisted and tortuous, and about two inches in length. It is one of the fine-leaved varieties, but quite hardy. A strong loam suits it best, but it thrives well in most ordinary soils, preferring an open if not exposed situation to close shaded or confined ones.—*Gar. Chronicle.*

WHITE CALYCANTHUS.—Mr. Berckmans reports in the *Farmer and Gardener*, that a white flowered variety of the Calycanthus has been discovered in middle Georgia. It blooms continuously till frost. This sweet shrub will be in great demand by the cut flower folks, as we should judge it would force easily through winter.

A PURPLE-LEAVED BIRCH has been found by some one connected with the firm of Transon Bros., Orleans, France, and is now under propagation. It is a variety of Betula alba.

DOMESTIC INTELLIGENCE.

AN OLD APPLE.—In the window of the store of Messrs. E. R. Laighton & Co., on Congress street, is exhibited a genuine curiosity; perhaps the only one of its kind and age extant—*an apple one hundred years old*—the property of Mr. Henry Shute, of this city. It was picked up in the year 1772, the outside being carefully stuck with whole cloves, so that no part of the fruit could be discovered peeping through. The grandfather of Mr. Shute, who died at the age of 85 years, came into possession of this curiosity when quite a youth, and at his decease it descended to the present generation The flavor of the cloves even is still quite perceptible, while the apple itself is plump and solid. Looking at this remarkable specimen of fruit preservation, we are reminded that a gentleman of this city has a doughnut which is within a few weeks of being *twelve years old*, kept as a relic of a donation party held in Stratham in 1861. It is in good condition, and with care must last for many years yet —*Portsmouth Journal.*

UTILIZATION OF SAWDUST.—M. Gustave Hueze says that, though sawdust decomposes very slowly, yet it may be economically used as litter in stables, and left for several months in contact with the solid and liquid excrement of animals, which it readily absorbs. It may also be composted with quick-lime and left in a heap for about a year. Additions may be made to this heap from time to time, but, when such additions are made, the whole heap should be well stirred. It will be improved by being frequently saturated with urine or sewer-water. Sawdust thus treated may be used on partially exhausted soils with great advantage.—DEPARTMENT OF AGRICULTURE.

MATURITY OF PEACHES.—In comparing our notes, made during a period of fifteen years, as to the periods of maturity of the leading varieties of peaches, we find the variation small whenever the fruit crop was an abundant one; but when the yield was small, the difference in time of maturity has always been more marked, and usually later than in good fruit seasons

On the 3d of August we had splendid specimens of *Amelia*, a variety which we have seldom kept as late as July 20th. *Hale's Early commenced to mature June 10th, and continued until the middle of July*, when the last specimens were eaten. In 1871 the whole crop was gone on the 10th of June. Some seasons our *Early York* matured before the Early Tillotson, although the latter is conceded to ripen a week before the former. These variations are, as before stated, more marked when late spring frosts have injured the fruit crop, and likewise upon the first productions of a tree newly transplanted. Many persons complain of the behavior of Hale's Early when first fruiting, its season of maturity being sometimes lengthened for several weeks, instead of embracing only a period of ten days. These defects become less apparent when trees become older, unless caused by climatic influences; and these causes not being generally known, have occasioned the numerous controversies lately

circulated in the horticultural magazines.—P. J. BERCKMANS, in *Rural Carolinian.*

PARK CITIES.—The plan of Ridley Park has been confided to one of the ablest landscape gardeners in the country—Mr. Robert Morris Copeland, a Harvard graduate and citizen of Boston, but now for a long time resident on the spot he is improving. He knows well how to compose his picture, arranging the groves and lakes in the most beautiful sequence, leaving sites for fine houses in the manner of pedestals for beautiful statues, and shading with discreet and natural veils the more utilitarian and prosaic features of the scene. He has already had much experience in the laying out of towns on novel plans adapted to the situation; his improvement of parts of Newport has elevated his name into very proud notoriety. At Martha's Vineyard he has built a summer village known as Oak Bluffs; on Long Island he has designed a beautiful city of summer worship for the Methodists, half encamp ment and half metropolis—a very Jerusalem for loveliness; he has established and designed an ornamental village on the seashore at Duxbury, near Boston; and has planned another near Grantville, on the Boston and Albany Railroad. He is also the author of an ingenious public plan for the improvement of Boston with a constellation of small parks and pleasure grounds, skilfully arranged in the portions where land is cheapest, and most available. Even in his temporary residence at Ridley, the restless itch of artistic skill has not permitted him to leave the place without changing an eyesore into a masterpiece. A little judicious rustic work has transformed the farmhouse assigned for his residence into a beautiful vine-clad chalet, and he has surrounded it with spacious and rare flower-beds, which look like cathedral windows lying on the ground. The railway-station, even, at Ridley Park is a novel and interesting piece of architecture, bridging the whole breadth of the road, provided with elevators for the baggage and fancifully sheeted with slate.—*Lippincott's Magazine.*

FLORICULTURE.—The Floral is the beautiful garden spot in the field of horticulture. It is as a paradise full of that influence which refreshes and delights the physical senses, and elevates the moral, the social and the spiritual nature. It brings us nearer home—nearer rest—carries us beyond the results of menial labors, and teaches us that it is not on bread and meat alone that we live. This garden of beauty, however, does not encourage inaction, nor reward without *some labor.* God requires of us no labor or duty, which, if properly performed, is not only pleasurable in the performance, but fruitious in results. In assigning women to this department in horticulture, requiring her delicate and refined taste and judgment, we do not infer that her presence or assistance would in any other department be dishonorable. As man's auxiliary, her ability and circumstances in life must suggest her labors and duties. But in this brief essay we must confine our suggestions alone to the influence of floral embellishments and adornments of home.

The education of woman cannot be regarded as complete in all the refinements without a knowledge of floriculture. What to her is a knowledge of the dead languages if she cannot converse with the living flowers? What to her is the French dialect if she cannot teach the silent tongue of the flowret to speak? What to her to be able to count and appellate the stars so far above, and blush in ignorance of the names and structure of the smiling flowers at her feet. In this respect the education of woman should in no wise be neglected. No mother with children under her charge, no wife with a husband whose heart she delights to gladden, can afford to be destitute of this knowledge of the beautiful. As knowledge refines the feelings of the soul, so do the feelings of the soul beautify nature, and she who through this proper knowledge appreciates these beauties will find them gathering about her. No difference how humble her cottage or limited her means, like angels' spirits or divine agencies, they will come to cheer and felicitate her and hers, purifying and sanctifying the associations of her home. What would life be? What would home be without these creatures of loveliness and perfume, or without the faculty within us to enjoy and appreciate them. In this we perceive and must acknowledge the goodness of God.—MRS. J. A. BLAIR.

THE WAGENER APPLE IN MICHIGAN.—The *Michigan Farmer* says: "Here is the great home of the Wagener apple, and we had a fine opportunity to see it in all its various stages, from first bud up to trees eighteen years old. On this soil and in this section of Michigan this apple not only seems to do well, but does well. Here were trees on a farm close by that had been

set out eighteen years, and had borne every year good crops since they first started. Last year these trees had borne a good crop. This year we saw them laden with fruit, and with a healthy vigorous growth of wood, and the foliage perfection. On the other hand, there were in the nursery young trees growing about five feet in height, this being the third year from the bud; at the top of the second year's growth there were one or two clusters of young apples, and nearly the whole stock of this variety at the same age had thrown out flower buds. On trees of an older growth there were fruit also, all going to show that here was an apple that could be relied upon to produce a crop at an early age; and this is a point not to be overlooked in this section of the State where settlers are cutting their way into the woods and making farms, and cannot buy fruit even if they had the money to spare for its purchase, which they have not. Mr. Husted said he had tried many kinds, and especially the Red Canada, and whether it was the soil or the climate, or the treatment, he could not say, but the stock was not successful. The reputation and favor with which the Red Canada, or Steele's Red was viewed when he first established his nurseries, caused him to devote to it a very large share of attention, but it did not prove a successful sort. It was difficult to grow, and especially difficult to get a well formed tree. It was quite slow in coming into bearing, he thought even slower than the Northern Spy, and when grown the fruit was not perfect, like the Esopus Spitzenburgh. The Wagener was just the reverse, and a man might grow two orchards of Wageners, and market the crops of one of them before the Canada Red would bear an apple. The Wagener was also a handsome, compact upright growing tree, that might be set in rows not over twenty feet apart. No apple had given more satisfaction at the West than this one. He had adopted it as a leading sort, rather against his worst impressions, and after having proved that it was adapted to the climate, the soil and wants of the people of western Michigan. The original Wagener tree at Penn Yan, New York, only died out about two years ago, after bearing full crops to the last, being then about eighty years old."

THE FLOWER FARM OF MR. C. L. ALLEN.—The Central Railroad of Long Island very generously placed a special train at the disposal of the Club. The Superintendent accompanied the excursionists, and looked after their safety and comfort while on his road. Fifty or sixty members and guests formed the party, and were debarked, literally, in the midst of a fifty acre flower farm, radiant, just now, with acres of Gladioli and Lily blooms.

There were eighteen acres of Gladioli in blossom. Perhaps our readers can imagine the mass of gorgeous color which three hundred named varieties, massed to this extent, would make. Perhaps they may have some conception of the adjectives used and the number of exclamation points required to report what the Club and its guests said on being pushed off a plank into this sea of bloom. Then, in addition to the three hundred named varieties, there was a bed of 3,500 seedling Gladioli—among them as fine specimens as can be found among the three hundred named varieties; and several that will become distinguished for their unique beauty.

Then imagine ten acres of Lilies, a large proportion of which were in bloom. These embrace also about 15,000 seedlings, most of which take the form and characteristics of *Tigrinum* and *Fortunei*. We saw here the only *Leitchlinii* in bloom to be found in the country, it was said.

Fifteen or twenty acres are cultivated in Tuberoses. John Henderson's new dwarf variety is here—about half as tall in growth as the old sort, and double—a decided acquisition, Mr. Allen says.—*Rural New Yorker.*

PEACH YELLOWS IN THE SOUTH.—Peach trees are never attacked by the yellows in this section, the sickly color of their foliage is, doubtless, caused by their stunted and consequently starved condition, and the presence of borers at the roots. To guard against the latter, remove all the worms you can discover under the bark of the roots, apply a handful of lime or ashes and afterwards hill up the trees as you would a hill of potatoes. Leave the trees earthed up until November, when the cone of earth should be levelled; and repeat the hilling up every Spring, before insect life becomes active.—P. J. BERCKMANS in *Farmer and Gardener.*

SINGULAR VARIETY OF COTTON.—Dr. T. L. Anderson, of Wilkes county, Ga., has developed, by cultivation and careful selection of seed, a variety of cotton which is certainly a curiosity, and may prove a very valuable variety. This cotton is peculiar on account of its excessive fruitfulness and the manner in which the balls

are developed. As described by the Washington *Gazette*, in growth and appearance, the weed has the resemblance of the prolific varieties, growing up in a somewhat conical form, though we think the growth is more vigorous than these varieties. The squares and blooms grow in clusters, and very thick. A very large proportion of the bolls are what we would call double for want of a better word; that is, two bolls are produced from the same square. This tendency to doubling is exhibited throughout the plant, and stalk and limbs of many specimens seem to take on the same characteristic, there being a groove on each side, presenting somewhat the appearance of a double-barreled gun. This crowding of the bolls does not seem to diminish their size, but they are generally very large and healthy in appearance. Upon one stalk in his field Dr. A. exhibits fifteen young bolls so closely clustered as to be covered with a single open hand. He has taken great pains during the past two or three years to preserve the seed pure and unmixed with other varieties. He has now several acres planted in this cotton, and we wish that his experiment may be of value to himself and the cotton interests of the country.—*Charleston Courier.*

THE MONARCH OF THE PARK.—Near the West State street entrance to the park, on the north side, stands a grand old elm, whose leafy boughs and long branches extend from the outside of the pavement, west, over to the sloping bank in the park in an opposite direction, covering an area sixty-five feet in diameter, or about 195 feet in circumference. The elm is supposed to have been planted some time between 1816 and 1820, by the late Gov. Shunk, who was then clerk of the House of Representatives, after the capitol was built, and has since that time, had several narrow escapes from the attacks of storms and tornadoes. The trunk is 8 feet 3 inches in circumference; and has a heavy iron bolt, with nut and plate through it, about eight feet above the ground, where it had been split, several years ago. At a point about fifteen feet high it has another iron rod and bands, and still higher up, (probably twenty-five feet) it is again secured with a stout iron rod and bands—which brace the heavy branches, and prevents their breaking off by the annual storms. The foliage of the elm is very thick, of a dark green color, and its shade is sought daily (except at this season) by hundreds of visitors to the grounds. The superintendent, Col. Reinehardt, has given special instructions to his assistants to keep a constant watch over the big elm.—*Harrisburg State Journal.*

FOREIGN INTELLIGENCE.

ROUGH CORK FOR RUSTIC WORK.—Some few years since a company, owning large Cork forests in Portugal, introduced for rustic work, and other horticultural purposes, a quantity of Virgin Cork. This first crop of the bark of the Cork Oak (Quercus Suber) is very rugged and uneven on its outer surface; it is, moreover, of a dusky grey color, is frequently covered with Lichens, and has altogether a weather-worn aspect: all which appearances recommend it for the purposes for which it was introduced. Besides its uses, however, for growing Ferns and Orchids upon, it is much used for imitation work in aquariums, and its latest application was for a similar purpose, but on a much more gigantic scale, for in the pantomime which has been played at the Crystal Palace, we understand the rock-work was formed of this Virgin Cork. The more general utilization of this Cork in Europe must be a great advantage to the owners of the Spanish and Portuguese Cork forests, as, from the fact of the Cork being uneven, comparatively hard, and full of holes, it is useless for bottle corks. This virgin or original bark, is usually taken from the tree when it is about 25 or 30 years old, and it is removed with much care so as not to injure the inner bark, which, of course, would interfere with the formation of the second crop, besides injuring the tree itself. After the removal of the first crop the following crops are taken off about every eight or ten years, but the third and succeeding crops are of the best quality, and consequently the most valuable. A remarkably fine specimen of Cork, stripped in one piece from a tree which grew in the Sierra Morena, Estremadura,

has lately been presented to the Kew Museum. When we state that it is 5 feet 9 inches high and 8 feet 8 inches in circumference, it will be seen that the tree from which it has been taken, was of no mean size.—*Gardeners' Chronicle.*

STOVE AND GREENHOUSE PLANTS.—For winter and spring blooming the best are:

STOVE.

Franciscea confertiflora.
Eucharis amazonica.
Euphorbia jacquiniæflora.
Stephanotis floribunda.
Gesneria exoniensis.
Aphelandra cristata.
Gardenia florida.
" citriodora.
Imatophyllum miniatum.
Poinsettia pulcherrima.
Franciscea calycina.
Plumbago rosea.
Eranthemum pulchellum.
Clerodendron Balfourianum.
Impatiens Jerdoniæ.
Amaryllis, of sorts.

GREENHOUSE.

Lapageria rosea.
" alba.
Bouvardia leiantha compacta.
Acacia Drummondi.
Statice profusa.
Epacris Lady Panmure.
" Sunset.
" salmonea.
Richardia æthiopica.
Monochætum sericeum multiflorum.
Epiphyllum Ackermani.
Camelias, of sorts.
Cinerarias, of sorts.
Azaleas, of sorts.
Cyclamens, of sorts.
Chinese Primroses.
Daphne indica rubra.

Gardeners' Chronicle.

CHEMICAL POWERS OF THE SUNLIGHT.—The facts stated in an article under this heading, quoted in the *Journal of Horticulture*, if correct, must be erroneously attributed to the cause assigned. The author is obviously very imperfectly acquainted with the results of recent research into the constitution and effects of light, the influence of which upon vegetation has been the subject of many experiments, and the particular action of the different rays is now pretty well known. The various-colored rays which compose white sunlight, as shown on analysis by the prism, are generally classed as the red (including the ultra red), the yellow and the blue (including the violet and the ultra violet) rays. The principal effect of the last, or blue rays, is chemical, actinic as it is termed, and chiefly influences the germination of seed; their illuminating and heating powers are smallest, instead of, as erroneously stated, their giving "giving the largest quantity of solar heat." The yellow rays, which have the greatest illuminating power, influences the growth of the plant, the decomposition of carbonic acid, and the formation of coloring matter. The red rays, the heating power of which is the greatest, influence fructification mainly.

As a ray of ordinary sunlight consists of rays of all the colors of the spectrum, the effect of blue glass is in reality to intercept the complementary rays—*i. e.*, the yellow, red, and ultra red, and it would consequently be more correct to say that the sun cast a diminished portion of yellow and red rays on every leaf in the grapery, instead of "cast a beam of violet light," as if the violet were an addition to instead of a component of the ordinary ray. If, therefore, the effect of violet-colored glass should be to augment the growth of plants in the extraordinary manner stated, it necessarily follows that the influence of the other rays which are intercepted by the glass—*i. e.*, the yellow and red rays—is to diminish vegetation, which is quite inconsistent with all experiment.

These facts are perfectly well known to physicists and those conversant with vegetable physiology. The chief practical result in this direction of scientific investigation is the introduction for conservatories of a glass colored greenish by the oxide of copper, which intercepts the excess of the red or heating rays.—SPECTROSCOPIST, in *London Journal of Horticulture.*

ABSORPTION OF MOISTURE BY LEAVES.—Mr. M. Cailletet has lately been investigating the question as to whether the leaves of plants are capable of absorbing water in a liquid state; and sums up the result of his experiments, by stating that the fact seems to be demonstrated that a plant growing in a humid soil and receiving by its roots the quantity of water necessary to its normal condition, does not absorb the water which moistens its leaves, but that such absorp-

tion takes place as soon as the leaves begin to wither, in consequence of the dessication of the soil. In this way he explains the phenomenon of certain plants maintaining a healthy condition without any contact with the soil, and even absolutely isolated from all assimilable substances. Thus, a specimen of *Pourretea* a rootless Bromeliaceous plant, maintained a healthy existence and exhibited considerable increase in weight, while suspended for more than six years in the air by a wire. No moisture ever reached it except that from the garden syringe, and yet it was continually putting out new leaves and flowering abundantly.

¶ THE FARM LABORER IN PRUSSIA.—Prussia has been the favorite theme for the eulogy of English economists, yet what does Mr. Howard (Bedford) tell us that he found near Cologne? "The men, as in France and other parts of the Continent, sleep in the stable with their bullocks and horses. The wages to farm laborers are paid all in money, and are from 1s. 2d. to 1s. 6d. per day in summer, and 1s. to 1s. 3d. in winter;" and this after a rise of 25 to 20 per cent. within the last 25 years, and amidst agricultural operations on a splendid scale of expenditure. On another Prussian farm, where Beet is largely grown, and additional quantities bought for the distillery, the wages throughout the year are 1s. 2d. a day; in the summer months the working hours are from 5.30 A. M. to 8 P. M. The woman get 10d. a day; and in this district of Germany, "there are a great number of small holdings." In Prussian Silesia, life uses the wretched laborer still more cruelly. In winter he has 4d. a day, the spring raises him to an additional 1d., and he attains his climax in summer, when 7½d. to 10d. constitutes his share of the rewards of the harvest.—*Blackwood.*

HORTICULTURAL NOTICES.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.

The annual meeting was held at Reading, on the 15th, 16th, 17th of January. The amount of business transacted was very large, and from time to time during the year we hope to avail ourselves of much of the material that may interest our distant readers. In the meantime the following from the correspondence of the Philadelphia *Press*, will give an idea of some of the topics introduced and the manner of their treatment:

The Fruit Growers' Society of Pennsylvania is one of those institutions, of which we have many in the State, which, beginning in an unpretentious, modest way, has grown to be one of useful influence, and to reach a commanding position. Its scope originally was to aid the fruit growing interest; but it has since taken in broader subjects, and now discusses all matters of a scientific and practical nature that have any reference to the profitable culture of the soil. It is rather a horticultural society, in which fruit culture is the most prominent feature. Though discussing pear culture for profit, a talk on roses does not come amiss to these gentlemen; and essays on beautifying grounds seem as acceptable as the ascertaining to a pennyweight the exact figures which any given pippin can attain.

THE MEETINGS

are held in different towns in the State, and annually grow in interest and the numbers who attend them. Of late years the State has deemed the proceedings worth publishing, and makes an appropriation for the purpose, and the last two volumes issued in this way have done credit to the Legislature and to the Society. The members are usually a liberal set of fellows in communicating their discoveries freely, and in utter forgetfulness of all patent laws, and thus the public become possessed of a large amount of useful information without price, but at the cost of money and time to the good old souls who attend. On the present occasion the Reading Railroad shared in the good work by a liberal reduction in the rate of fare, much to the good feeling of the members of the Society.

ONE GOOD THING

has resulted from the labors of the Society. Before its existence most of our best fruits were

natives of other States; now it is found that our own seedlings are equal, and some superior, to any outside productions. For instance, wherever we go praises are heard of the Lawrence pear, a Massachusetts variety, and whoever plants thinks he must at least have one tree of these. But this meeting developed the fact that a variety raised here, known as the Reading pear is a superior variety for winter use to this celebrated Lawrence, and will no doubt, in time, completely take its place.

THE CULTURE OF PEACHES.

An interesting discussion, started by Mr. Levi Reist, of Lancaster, resulted in demonstrating that there was no serious trouble in peach culture which could not be overcome, so as on all occasions the peach should be healthy and tolerably productive. Overbearing was one great evil, shortening the life of the peach tree; and this thinning out the fruit while quite young would remedy. Borers in the stem near the ground could be kept out by the use of paper gas tarred on the outer surface. Fungus at the root, one cause of yellows, could be destroyed by pouring hot water, if the tree be small, about the roots, or by adding caustic potash or gas tar to the soil. The fourth evil—poverty—manure cured.

IMPROVED APPLES AND PEARS.

Tobias Martin, of Mercersburg, introduced the subject of improved apples and pears in an admirable address. Most of our market apples, he said, come from other States. These are such as Rhode Island Greening and Baldwin, and then our people plant these trees, but they are not the best for us. The summer Rambo was our best summer apple. He also named as the best apples for Pennsylvania, Smith's cider, Imperial russet, York imperial, and Hubbardson's Nonsuch. In pears he named among the best Tyson, Brandywine, Kingsessing, Dana's Hovey, Dix, Glout morceau, and Lawrence.

FOR CANNING PEARS,

Wr. Williams, of the *Horticulturist*, said the Lawrence was the best he knew. Pears were profitable for this purpose. Some not worth eight dollars per bushel in the general market had brought twenty dollars this way.

Mr. Engle, of Marietta, said the Howell was another excellent pear for this purpose. The demand for pears for canning was increasing, but was not yet equal to that for peaches. Glass is more expensive than tin for cans, but seems most popular.

THE ANNUAL ADDRESS BY THE PRESIDENT.

President Hoopes' annual address gave an account of the progress of the year. He had the past season examined the fruit gardens in Europe, and except in glass houses, saw no such fruit as we can raise. We had the finest climate for fruit in the world, but hardly knew it.

A FEW REMARKS ON FENCES.

Mr. Meehan was called on to open a discussion on fences. He referred to the growing price of lumber, the improbability that individuals would largely engage in timber raising, and the desirability of Government fostering tree culture. He thought live fences the cheapest, and named the various kinds of plants adapted to hedge purposes; but he thought the perfect hedge plant had not yet been found. With many defects, the Osage Orange was the best. Too much kindness was given it. It ought not to be cut while young. Let it grow as it will for three or four years, then cut to the ground and trim the subsequent young growth to shape.

THE PREPARATION OF GROUND FOR ORCHARDS.

The best way of preparing ground for orchards produced an animated discussion, with some divergence of views. Messrs. Ed. Satterthwaite, William Parry, Williams, Engle, Reist, Paschall Morris, Stauffer, and others participated. Some thought the ground should be ploughed deep, subsoiled, and under-drained; others, that this was too expensive to be profitable, and by ridging up the ground by the plough so as to keep away the surface water from the roots, success was as much assured. All agreed, however, that in some way the roots of the trees must be secured against water lying long about the roots in the summer time.

ANNUAL REPORT OF THE FRUIT COMMITTEE.

Edwin Satterthwaite read the annual report of the Fruit Committee. He thought the reason for the immense crops of last year not yet well explained, and thought it well worthy of a better study from close observers, so that perchance we might profit from the lesson for all time to come.

THE CODLING MOTH.

In the discussion on insects injurious to the apple crop, it came out, that pieces of old shingle, screwed loosely together, formed so attractive a nest for the codling moth, the apple's great enemy, that it was no longer to be the dreaded scourge it had been.

PROFITABLE ORCHARDING.

On the question how to make orchards the most profitable there was a difference of opinion. Apples and pears are some years coming into bearing, and what best to grow from the first planting of ground was the question. Some thought an annual manuring of the trees and of the grass brought heavy and profitable crops. Others would not grow grass, but grain. Wm. Parry would grow raspberries and small fruits between the trees; had known as much as $700 per acre to be had in this way before the apples came to bear.

THE BEAUTIFYING OF GROUNDS

Is it profitable to beautify one's grounds? was introduced by Mr. C. H. Miller, of Germantown, and produced a very animated discussion. All seemed eager to agree that beauty was not only mighty pleasing to the eye, but a capital thing for replenishing one's purse in the case of a sale of one's house and grounds, and many a farmer will go home from this meeting with a determination to have his pig yard a little further away from his front door than ever before.

UNDER-DRAINING.

In regard to the profit of under-draining, members did not seem as enthusiastic for the practice as they used to be. Swamps, they all agreed on, were benefited; but the English experience that nearly all lands could be profitably underdrained did not seem to be borne out by American experience.

GRAPE CULTURE

was introduced by Mr. Merceron, of Catawissa. He raised a sensation by asserting that a seven years' experience in not stirring the ground, but growing grass between his grapes, had proved it to be the best plan. The prices of grapes had been downward for some years. They were hardly profitable of late, and how to utilize the surplus grapes was a question. Some thought of wine. Rev. Mr. Calder, of the Agricultural College, hoped wine-making would be discouraged. Jellies, preserves, and other plans would take large quantities of the surplus. Mr. Williams said grape vinegar had been found very profitable. In regard to varieties, the Concord, Clinton, Telegraph or Christine, Hartford, and Ives, were named as still the best.

NOXIOUS WEEDS,

by Wm. Parry, brought out the fact that the Canada thistle and the horse nettle were the only very bad pests. Parry thought some judicious legislation would do no harm in regard to preventing their spread.

THE CENTRE COUNTY FARM SCHOOL.

Rev. Mr. Calder was asked to give some account of the farm school in Centre county. He explained the immense difficulties of the position. Death and other misfortunes had removed five presidents. He had been president but eighteen months (about as long as the longest), and the frequent change of plans with heads could not but be injurious. The institution was heavily burdened by debt, and original errors which could not be immediately helped now depressed the spirits of the trustees. But they were determined time should mend these, and they were being slowly mended, and it was fast gaining public confidence. When he took it there were but 37 students, now there were 150, 32 of whom were girls. They were not only taught the higher branches of learning, but also to work—and horticulture was among the subjects of instruction. There had been a great deal of adverse criticism, but he was sure the public did not know of the immense difficulties under which the institution had labored, or how much with small means had been done to remove them. He felt it would not be long before the institution would be one to do credit to the State.

THE FRUITS MOST IN FAVOR WITH PENNSYLVANIA.

In a vote to indicate which fruits were most in favor with Pennsylvania fruit-planters, the apples Smoke-house, Smith's Cider, and Fallowater received very heavy votes. Pears—Bartlett, Lawrence and Seckel. Peaches—Crawford's Early, Crawford's Late, Old Mixon, and Smock. Strawberries—Wilson's Albany and Triomphe de Gand; and in grapes only the Concord had any votes worth speaking of.

THE NEXT PLACE OF MEETING.

In addition to the encouragement given by the Reading Railroad, the hotel proprietors also reduced their rates of board, the Mansion House being particularly attentive to a numerous body of guests. The Library Company granted the use of their splendid hall free of charge, and the members generally were delighted with their reception. York and Mechanicsburg, in Cumberland county, made a bid for the next January meeting, and the latter place was adopted.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

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HINTS FOR MARCH.

FLOWER GARDEN AND PLEASURE GROUND.

March is one of the worst times for a magazine like ours to offer hints for the month. While at the southern end of our "parish" the dutch bulbs are almost out of blossom, and the rose season well nigh come; on our northern coast winter "still lingers in the lap of spring," and scarcely a snowdrop has handed its clear white cup up from mother earth to our admiration. But our hints are always to be taken as general, rather than as special directions—and if in some places the time should be gone by for any useful action, what we say can be remembered, and we hope they will profit some one next year, if too late for this.

We have very little to chronicle this year as especially new in gardening taste. There is possibly not so exclusive a regard for mere masses of plants for the effects of their color as there was. Flowers are more loved for their own sakes than formerly; and this will bring up again the Hollyhocks, Chrysanthemums, Dahlias, Pansies, Pinks, Phloxes, Polyanthuses, and other old fashioned things which the rage for massing nearly drove out of sight. Still the beautiful effects on the garden landscape produced by the newly introduced colored leaves which continue to come, will keep the massing style popular for many years yet. It is found that a very slight variation in colors of a leaf make a remarkable difference in the effect when massed. Thus we may have two plants of two kinds of Coleus together, and we see little difference between them; but when there are a few dozen of each kind in a mass together, we take in the aggregate of the difference, and the effect seems very striking. As these plants vary very much from seed there will be room for many unique effects in this way from them for many years to come.

There have been some interesting and novel features introduced into European flower gardens the past year in the employment of dwarf hardy shrubs as permanent borders for flower beds. The little dwarf variegated Japan Euonymus, E. radicans variegata, for instance, makes a charming border for Coleus, Achyranthus, and such other things. Then the Golden Arborvitæs, Golden Yews, and so forth, by a little shearing, such as we give box edgings, come nicely into play with many brilliant colored leaf plants. There is an additional merit in this style, that the beds do not look so naked in winter as they do when annual plants alone are employed. The Ivy is very much employed for this purpose, and there are now so many varieties of Ivy that a set of a score or more of beds may be given a very varied appearance by the means of Ivy borders alone.

So far as the general hints applicable to the every year management of the flower garden department is concerned, the annual pruning must be got through with as soon as possible.

Many delay pruning shrubbery until after severe weather passes, so as to see what injury may be done, but with March all should be finished, taking care not to trim severely such Shrubs as flower out of last year's wood, as for instance the Wiegelia; while such as flower from the spring growth, as the Althea, Moc

Orange, &c., are benefitted by cutting back vigorously.

Do not transplant extensively till the ground is warm and the buds are about to push. Many things die by exposure to winds for a few weeks before they have warmth to push roots and leaves into growth.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much the worse for removal, cut but little of the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In a nursery, where these matters are well understood, trees "never die.'

Box edgings lay well now. Make the ground firm and level, plant deep, with tops not more than two inches above ground.

If flowers have been growing in the ground many years, new soil does wonders. Rich manure makes flowers grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheelbarrow of manure to about every fifty square feet will be enough. If the garden earth looks gray or yellow, rotten leaves—quite rotten leaves—will improve it. If heavy, add sand. If very sandy, add salt—about half a pint to fifty square feet. If very black or rich from previous years' manurings use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

FRUIT GARDEN.

Take borers out of fruit trees, and wrap tarred paper round the stem at the collar to keep them out for the rest of the season.

Wash the bark of trees, where not done, to kill the eggs of insects, and soften the old skin so as to permit it to swell freely.

For small places, a plentiful supply of Strawberries, Raspberries, Blackberries, Gooseberries, and Currants should be provided, and the Grape-vine by no means forgotten. These seldom fail to do well. Strawberries do well on a rich, dry, but deep soil. On banks that are not too poor or dry, they seldom fail to do well, and are often three weeks earlier than when on level soil. The Blackberry also will do on dry, rich bank. We mention this as there are often such spots in small gardens which it is desirable to render useful. *Strawberries seldom do well in low, wet ground.* Raspberries and Gooseberries do better there.

Of course all our readers know by this time that deep planting causes the annual death of hundreds of thousands of both Blackberries and Raspberries. An inch under ground, and the earth beaten or trodden firm, is enough for these plants.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence on producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

In planting fruit trees aim to have them so that the hot dry sun will not have full effect on the ground about the roots. The great heat in this way injures the trees. Many who have trees in gardens plant raspberries under them. The partial shade seems to be good for the raspberries, and helps the trees. Blackberries would, no doubt, do well in the same situation; and Strawberries, it is well known, do not do badly grown in the same way.

The gooseberry and currant also do well in partial shade. In fact if you would have the gooseberry and currant in great perfection, get a lot of old brush wood and cover the rows closely, so that the plants will have to push through and you will be astonished at the growth and healthfulness of the bushes. The decaying wood also furnishes an excellent manure for them. The finest currants ever grown can be had by mulching with old chestnut burrs, or even sawdust.

In fruit growing remember that fruits are like grain and vegetable crops, in this, that they must have manure to keep up fertility. Unlike vegetables and grain, however, their feeding roots are mostly at the surface. It is best, therefore, annually to top-dress fruit trees. If manure cannot be had, any fresh earth from ditches or road sides, spread a half an inch or so under the trees, will have a wonderful effect. Indeed, we do not know but that for the pear tree a thin layer of road sand is one of the best of manures. We have seen apples thrive amazingly with a coating of coal ashes.

Apple trees in orchards are often so thickly matted with branches, that none of the leaves get their full share of light and air. This should never have been permitted, but as it is, a vigorous thinning should be effected, though the axe

and saw be called in to effect it. Sprouts wi'l come out thick next summer, after such pruning, but they should be torn out while green.

Peaches, is is said, grow too strong generally, and should not be pruned; but the same rule holds good as with apples. Thin out all weak or crowded shoots. Our experience is that if a peach tree's constitution is not impaired by bad treatment, it seldom grows too strong for its own good.

Grapes that have become weak from age may be renewed by layering down a branch some feet just under the surface, and then cut back, so that one good eye only be left at the surface of the soil. The plant will then recover its good appearance quite as well as by cutting down, with the advantage of not sacrificing a year's crop of fruit.

VEGETABLE GARDEN.

In the open ground Peas and Potatoes receive the first attention. Then Beets and Carrots. Then Lettuce, Radish, Spinach, Onions, Leeks and Parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done till the first week in April. There is nothing gained in working soil until it has become warm and dry.

Those who have no Spinach sown in the fall should do that right away; no amount of stable manure but will be a benefit to it, though guano, in even smallish doses, will kill it. Guano produces excellent Cabbage, mixed with the ground while it is being dug for that crop. Cabbage, by the way, may be put in as soon as the ground is ready; and Potatoes are better in before the beginning of next month, if the ground is not too wet; many plant Cabbage between the Potato rows.

Onions are better put in early, but the ground ought to be dry, and trodden or beaten firm when the sets are planted; the ground ought not to have rank manure—wood ashes and pure undunged loam will alone produce an excellen, crop.

Where new Asparagus beds are to be made, now is the time; the ground should be rather moist than dry, and be trenched two feet deep, mixing in with it a good quantity of stable dungt and if the ground be inclining to sand, add some salt; the beds should be marked out four feet wide, and the alleys about two feet. If pegs are driven down at the corners of the beds permanently, they will assist operations in future years. Having marked the positions of the beds and procured a stock of two year old plants, place them on the soil nine inches apart in rows one foot asunder, making three rows in each bed; then cover the whole with soil from the alleys and rich compost a couple of inches.

To have Turnips good in spring they must be sown very early; they are hardy, and must be put in as soon as the ground can be caught right.

Parsley delights in a rich gravelly loam, and should be sown very early.

Parsnips, another crop which should receive early attention, also delights in a deep gravelly soil, but detests rank manure.

Lettuce and Radishes continue to sow at intervals.

Herbs of all kinds are best attended to at this season—a good collection is a good thing.

The Carrot will thrive in soil similar to the Beet; lime is an excellent manure for it—we use long Orange. Celery may be sown about the end of the month, in a bed of very light rich soil, and Tomatoes, Egg Plants and Peppers sown in pots or boxes, and forwarded. It is as bad to be too early with these as too late, as they become stunted.

In vegetable garden culture it must be remembered that we have to operate the reverse of what we do in fruit culture. A woody growth is what we require for fruit trees; but we need for vegetables a soft, spongy, succulent character, the very reverse of this. For this end the ground cannot be too deep, too rich, or too much cultivated. The hoe and the rake should be kept continually going, loosening the surface and admitting "air and light" as the old books used to say. There is not only an advantage in this for the direct benefit of the plant; but an early use of these tools keeps down the weeds, and thus we save labor. It is a great thing to be "forehanded" in the weed war,

COMMUNICATIONS.

AMERICAN HORTICULTURE.

Address delivered before the Germantown Horticultural Society, January, 1878.

BY THE PRESIDENT, JOHN JAY SMITH, ESQ.

[*Condensed for the Gardener's Monthly.*]

Mr. Smith, after returning thanks for the honor of his election, put his audience in a good humor by the anecdote of a witty old gardener, who when asked after his health, said he had no exact disease, but was afraid he had a little touch of the complaint called *Anno Domini!* and that it was probably this gardener's reckless son who said the only botanical terms he ever could remember were Aurora Borealis and Delirium tremens!

A large and attentive audience then listened to an address, from a stage elegantly decorated with the rarest exotics, &c.:

PROGRESS.

This country has something yet to do before we entirely rival the planting and the gardening of Europe, for which science, time, labor and money have done so much. We began by cutting down the forests with which the whole land was covered. We are beginning to replant it with beauty, utility, shelter and shade.

The condition of horticulture only 60 years ago, may be inferred from the fact that there were then very few greenhouses, and they were mostly filled exclusively with lemon trees. Europe itself had made but incipient progress; and with our small culture, and the difficulties of importation, in sailing packets, but little advance in either theory or practice had been made.

BARTRAM

had a commercial nursery, and was himself a great pioneer botanist and amateur. The Hamiltons, at the Woodlands, near by, set a good example. The Landreth brothers began to enlarge their open air and glass accommodations, and did much to excite a taste for the improvement of the garden. Then came Pratt's private establishment, including spacious gardens, at one time under the direction of Mr. Buist, who is still living, and who made of the whole establishment a fairy scene. With these exceptions and McMahon's, we must close the catalogue of accessible or even known places in our neighborhood, where the few results of horticulture could be studied. It marks the humble nature of our comforts, when we know that ice in families, so late as 1812, was an unknown luxury. We then lighted our fires and our cigars by means of a tinder-box and a flint. As to planting the trees of other countries, that pleasing occupation was almost unknown. To the many it was utterly so. The Bartrams were supplying seeds of our native trees to England, and perhaps to the continent of Europe, but they received little or nothing from abroad.

Their plantation still contains the best evidences of their love of nature; but their specimens it will be remarked from those still standing, were mostly American, some of them brought by the elder brother in his saddle-bags from southern climates. All this story is inimitably told in

DR. DARLINGTON'S LIFE OF BARTRAM,

with its simple and yet enthusiastic correspondence with Collinson, Fothergill, and Lord Petre, a book not inferior, in its way, to Boswell's Johnson.

See what progress we have made in the brief lifetime of a single person! Let us go forward with the hope of *more* progress; we can never hope to *finish* the work; for the duties and pleasures of a garden are endless, and are constantly increasing in interest. In this line, however, beauty is only to be obtained by toil, but it is toil conducing always to pleasure and to health, and to what Bacon calls the "purest of human pleasures."

BOTANY.

It should be the desire of every young gardener to follow the example of Bartram, called by Linnæus, the greatest natural botanist, and to make botany a subject of his studious attention. It will assist him in every attempt to improve himself, and will be, in fact, his right arm. He will be very apt to fail in the highest aspirations of his profession if without the immense advantages it affords. The only possible objection to the botanist, and it is a very slight one indeed, is that he takes his draughts of knowledge from his herbarium rather *dry!*

No man is thoroughly educated who has ignored what was so dear to Linnæus, Darling-

ton and Gray. We have in this place several good botanists to refer to in difficulties. All must admit, however reluctantly, that in our floral concert, the botanist plays the first violin. There is immense enjoyment in this science when attained; but Lessing declared that if he had been offered between the possession of truth and the pleasure of seeking for it, he would have unhesitatingly preferred the latter. Botany offers the best illustration of this perhaps, that could be adduced.

Let me hint to all young gardeners that there is no such thing as *luck*. What does Richard Sharpe say? "Untoward accidents will sometimes happen; but after many, many years of thoughtful experience, I can truly say that nearly all those who began life with me have succeeded or failed as they deserved." If this be true of life, may it not also be said of the greenhouse and garden cultivators?

THE BEST PEOPLE.

The best people and the best trees are cynically said to be the scarcest and rarest. So it is with precious stones. Diamonds are rare and dear, but because diamonds and pearls, and tapering rare pines are too expensive for the masses, the masses should not despise elegance easily attained. We need not forego the fragrance of the hyacinth because a neighbor has a plant of the *Olea fragrans* cultivated at a heavy cost. In all probability the hyacinth of our own cultivation will afford the greater pleasure to us.

As a converse to the proposition that the best trees and the best people are the scarcest, it may be said with equal epigrammatical accuracy, that the cheapest trees are the dearest. To be very cheap they must be of rapid growth, and rapid growth is followed by rapid decay.

GERMANTOWN.

This society is, perhaps, the opening wedge which, by bringing together the leading minds of the district, will inspire a determination to improve our neighborhood, and while we put our own shoulders to the work, induce legislation for our just share of improvements. That we do want a little more public spirit about our surroundings must be evident to all. Successors of the original German element, which was apt to be satisfied with the necessaries of life, we are purchasing and pulling down their tenements, or building on their pastures. We are, in fact, erecting dwellings suited to the more wealthy period which has overtaken the country, and is everywhere exhibiting the happiest results. If we are true to the objects we propose to realize, other results will surely follow, until our whole region becomes an example of horticultural beauty.

The speaker then alluded to the remarkable trees around Germantown, and gave the following account of the most interesting arboretums around Philadelphia and in Germantown, that of

ALFRED COPE, ESQ.,

on the old York road, above Fisher's lane, which contains one of the best selected collections of trees and shrubbery, chiefly exotic, that can be found in this part of the United States. This collection embraces more than two hundred and fifty species and varieties of hardy forest trees and shrubs, and has been made with great judgment. It is especially rich in specimens from Siberia, Central Asia, China, Japan, and our own far western regions. Although of too recent origin to contain many large specimens, it is highly worthy of attention from scientific botanists, as well as from professional horticulturists, who will there find some of the rarest and most interesting trees and shrubs of the old and new worlds. I hand the secretary a list prepared by Mr. Cope himself.

With the exception of the remarkable trees named, our predecessors have left us but little to admire in the way of fine productions. Occasionally you meet with a large, old box-bush, and wonder who was good enough to plant even that!

MR. COPE'S ARBORETUM.

It will doubtless occur to many of my hearers that there is a vast difference between the future of the work done at Fairfield and the work generally done in a plant house. That difference consists in the fact of the arboretum planting having a permanent character, and the cultivation of herbaceous plants a more temporary one. Mr. Cope is preparing knowledge and enjoyment, not only for to-day, but for all time. When the hothouse has ceased its ornamentation, however beautiful and valuable its results, and decay has laid the structure low, the arboretum will have improved. Its curious and teaching treasures will have attained their growth, and many of its trees will have become like giants of the forest, while the permanent, slow growing kinds will have the appearance they put on in their native habits.

Not that we would in the least discourage the lover of the hothouse. Each has its great merits, but where there is space, we advise the

cultivator of the closer quarters to look sometimes out of doors, and see if he cannot find a few spots for permanent growths also.

The two occupations and experiences harmonize well together, and should, in fact, wherever possible, be united in the same person.

MUSHROOMS.

The way to become useful as well as famous, is to supply some of the many unsupplied wants of human beings. Who will not agree that there is a lack of some desirable articles for the table which might be sold in quantities, and which almost every taste appreciates. To mention one article—the Parisian market is supplied with abundance of fresh mushrooms. Every bill of fare announces them, and everybody eats them. How they are grown so abundantly is told by William Robinson, in a little London book. He goes so far as to say there is no difficulty whatever, and he would undertake to produce them even in so inauspicious a locality as an old shoe! There are various places where this desirable esculent can be grown; there is no reason why plenty should not be provided. There is a gold mine in this to any one who will raise a regular supply. The hotels alone would take large quantities.

FIGS.

In a climate like ours, every addition to its luxury of fruits is to be studied. We cannot have many of the productions of more southern climes, but we can have some not generally grown, by a little attention and thought. For instance, ripe figs are very acceptable to many, if not to most persons; but how very few grow them here. That it is perfectly practicable to do so is shown in several places round us.

Mr. Smith then exhibited fine cones of the Cedar of Lebanon, planted thirty-five years ago, by himself, at Laurel Hill Cemetery, of which he is the founder and President, showing that in this latitude this noble tree may be acclimated. He has done the same with the Magnolia Grandiflora, which blooms profusely with him. The Franklinia, now Gordonia pubescens, is also hardy at Philadelphia, and with the yellow wood, Virgilia lutea, should be in every plantation.

DISTINGUISHED CITIZENS.

The speaker in the course of his remarks alluded with feeling to the decease of three remarkable scientific residents of Germantown, who have lately gone to their long homes; two of them ladies. Charles J. Wister was remarkable for his extensive knowledge in all science, especially of astronomy and botany, having an observatory of his own, and a garden of rare plants. Margaretta and Elizabeth Morris; the one a writer of merit on insects injurious to vegetation, the locusts and the hessian fly; the other an accomplished botanist, the friend and coadjutor of Gray, and both the correspondents of Agassiz and the companions of learned men.

[Mr. Smith might here, but for his modesty, though we hope not for years to be classed with the deceased, have said that he himself was the successor of Downing in editing the famous *Horticulturist*, so that Germantown makes no mean pretensions to be known as a seat of science.—ED.]

WHAT SHALL WE PLANT?

is the constant enquiry of beginners. What we shall *not* plant is almost equally important. That we should employ trees and shrubs on our home grounds, foreign to our own immediate locality, is a general, though with slight reservations, a universal rule. It is a truth that seems even now startling. It was known long ago, but Loudon enforced it to the popular mind, his argument running thus:

FOREIGN TREES TO BE PREFERRED.

"In modern landscape gardening, considered as a fine art, all the more important beauties and effects produced by the artist, may be said to depend on the use which he makes of foreign trees and shrubs, for the principle is established that all art, to be acknowledged as such, must be avowed. This is the case in the fine arts. There is no attempt to conceal art in music, painting or sculpture; none in architecture, and none in the geometrical style of landscape gardening. Why should there be an attempt to conceal art in modern landscape gardening? Because, we may be told, it is an art which imitates nature. But does not landscape painting also imitate nature? and yet, in it the work produced is acknowledged to be one of art. Recur to what is meant by the imitation of nature, and reflect on the difference between repetition and imitation. In the imitative arts, the imitation is always made in such a manner as to produce a totally distinct work from the thing imitated, and never, on any account, so like as to be mistaken for it. In landscape painting, scenery is represented by colors on a flat surface. In sculpture, forms which in nature are colored, are represented in colorless stone. The intention of the artist, in both cases, is not to produce a copy which shall be mistaken for the original, but

rather to show the original through the medium of a particular description of art; to reflect nature as in a glass. Now to render landscape gardening a fine art, some analagous process must be adopted by the landscape gardener. In the geometrical style, he has succeeded perfectly; his straight lines, forms, and artificial surfaces, so different from nature, are at once recognized as works of art. A residence thus laid out is clearly distinguished from the woody scenery of the surrounding country, and is satisfactory because it displays the working of the human mind, and confers distinction on the owner as a man of taste and wealth. A place laid out in the modern style, with the surface of the ground disposed in imitation of the undulations of nature, and the trees scattered over in groups and masses, neither in straight lines nor cut into artificial shapes, might be mistaken for nature, were not the trees planted chiefly of foreign kinds, not to be met with in the natural or general scenery of the country. Almost everything in modern landscape gardening, depends on the use of foreign trees and shrubs; and when it is properly understood that no residence in the modern style can have a claim to be considered as laid out in good taste in which the trees and shrubs are not either foreign ones or improved varieties of indigenous ones, the grounds of every country seat, from the cottage to the mansion, will become an arboretum, differing only in the number of species which it contains."

We might illustrate this by a forcible example. Suppose a man living in a pine woods should make a pleasure ground, we should be tempted to smile at him if he planted only the surrounding pine trees. His visitors would surely see little beauty inside the territory.

(*To be Continued.*)

PEREGRINATIONS IN NEW HOLLAND.

BY W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

The good people of Armadale, New South Wales, who had hitherto enjoyed peace and quietness in their pastoral pursuits, secluded as they were within a pleasant and romantic valley, were one day aroused from their semi-repose with the startling intelligence that they were absolutely walking through streets literaliy paved with gold. The gold fields of Uralia were adjacent, and Armadale being on the North Road, 370 miles from Sydney, and near to Trial Bay, on the Pacific coast, rapidly changed from its former quiescent state, to a stirring and busy town of considerable importance.

Such exciting news, though doubtful at first, was soon corroborated on the arrival of that indubiatable personage who settles all doubtful questions, "the reliable gentleman," who seriously assured the bucolic plodders who earnestly inquired, "are ye sure the news is true?" with the affirmative yes, and as "seeing is believing," exhibited specimens of "nuggets" and "dust." Like a theatrical transformation scene, everybody and everything suddenly changed as the whirl of excitement spread more speedily than their destructive bush fires, and flashed the news from the centre to the circumference of New Holland.

The first Australian gold was discovered in the neighborhood of Bathurst, by a Mr. Hargreaves, in 1851, and the excitement which followed was then at its height. The "gold fever" became contagious generally, and during its paroxysms so affected the people, that men like maniacs, rushed from their legitimate callings and went off instanter to the diggings. The lonely shepherd and stockman, far in the wilderness, left their flocks and herds to take care of themselves. The skilled artisan and cunning craftsman in the city, left their employment, and side by side with the professional man, eminent in science, the hoary headed "old lag," on whose sinister looking features, *convict* was discernable, were eagerly delving for the hidden treasure with the wildest enthusiasm. Ships were deserted in the harbors, and left without either captain or crew. Everything mundane seemed topsy-turvy throughout the land, and especially so in the sequestered little town of Armidale. Strange as it may seem, the thirst for gold and the thirst for brandy seemed unquenchable. Nearly every house was turned into a store or tavern, in which the shrewd venders soon amassed fortunes and retired from business, as becoming to Colonial *gentlemen*.

At the principal hotel, "The Jolly Diggers' Retreat," they were keeping open house, the bar-room door of that imposing edifice having been removed, and placed under the wide spreading boughs of a large blue gum tree, Eucalyptus piperita, for a dance board, where a party of lucky diggers had joined a jovial crew of runaway sailors, who were *heel* and *toeing* it in their bare feet, to the screechy tones of a weasy old fiddle.

In years gone by, I remember seeing Cook, on

the London stage, as "William," in the play of "Black-eyed Susan," delight the happy play-goers with his matchless Sailor's Hornpipe, but never since then did I ever see such terpsichorean feats as were performed by "Jack ashore."

O! departed shades of Paganini and thy inimitable violin, whose soul stirring strains will never echo again. How blessed is thy spirit, where no wicked bush fiddler, with the agonizing wail of persecuted music, can awaken thy slumbers!

I have long since forgiven, though not forgotten, poor Paganini the second, who I believe "did his level best" as a professor of "the art divine." No, worthy man, I entertain no unkind feelings toward thee; I rather feel to pity thee with all thy musical faults, and love thee still.

Such carousals were common to Australia in those days. Ludicrous in the extreme were the antics and vagaries of the jolly diggers and rollicking sailors. Some experts had shown their skill as portrait painters, and had produced some such striking likenesses as would have put the "Old Masters" to blush if they could only have seen them. A party of miserable blacks were hanging around, whose naked bodies had been painted, some in all the colors of the rainbow, in a succession of stripes, after the fashion of a barber's pole, while others, according to the fancy of the *artist*, had some humorous pictures delineated on their faces and bodies. As a frontispiece, one pot-bellied fellow was ornamented with a figure of "Neptune," trident in hand, while another equally proud, was decorated with an allegorical subject, namely, "Old Nick" on the rampage. It has happily been my good fortune to see the celebrated portraits of the members of the famous "Kit Cat Club," by Sir Godfrey Kneller, and the no less celebrated Gallery of Portraits, by Hogarth, but never did I see "the human face divine" *so wonderfully painted* as were these of the sable ladies and gentlemen in New Holland.

The veil of night was gently falling over the setting sun, which gradually withdrew to the eventide shades, as the rude and boisterous revellers, one by one, succumbed to the potation so freely imbibed, and were soon oblivious to all the cares of life.

Bonniface, mine host of "The Jolly Diggers' Retreat," was "all the worse for liquor," and his wife was not much better. The only sober one connected with the hotel was "Towser," a sagacious and sullen bulldog, whose temper seemed soured with the lax state of affairs. He, "Towser," had assumed the responsibilities of house keeper and bar tender, and sternly refused to admit any one within. A more efficient *house keeper* I never knew, as he sat grimly and defiantly on the counter, growling vengeance against all intruders. He reminded me of that ominous warning of Dante's: "abandon hope all ye who enter here."

Footsore and weary as I was, I retired to rest in an empty bullock dray, which luckily for me was unoccupied, and proved a snug and cosy little bed room, in which I slept soundly. When morning broke, the gibbering savages, who had figured so in the previous day's doings in all the glorious colors the motley paint pots of Armadale could produce, had brought in some other sable "beauties without paint," anxious to be similarly ornamented, and who I doubt not, were made equally happy in due time.

We started in search of something to eat, which having obtained, and laid in a fresh supply for the onward journey, we bid adieu to Armadale and the jolly diggers therein. Taking a southwesterly course for some distance, we crossed the Peel River, which waters the rich pasture lands of Liverpool plains. The soil is very fertile, and is farmed to a considerable extent. Here Palms, the "Princes of the vegetable kingdom," as Linnæus very appropriately terms them, were numerous and strikingly beautiful.

Generally adjacent to the sea beach are found the Pandanas spiralis, or screw pine, as they are commonly called, from their resemblance to a huge pine apple plant; of spiral growth. Some unusually large specimens were here met with. Old plants have a peculiar appearance, and are remarkable for the large aeriel roots, which seem to rise from the earth, instead of descending to it. Very oddly they seem to stand, propping up to some thirty or forty feet high their immense crowns of handsome foliage. In cultivation they are indispensable as hot house ornaments, where they have sufficient room to grow and flourish in.

Of the singular family of marsupials which abound in New Holland, the red-necked Kangaroo, Helmaturis ruficollis, is perhaps the most numerous and conspicuous. Here seemed to be a favorite feeding ground, where they quietly graze on the rich grasses which cover the alluvial plains. It is amusing to watch the gambols

of the young ones as they lightly bound with surprising agility in their sportive play. They are somewhat chary of the too near approach of man, or rather that remorseless biped, *sportsman*, (so called) who, when armed with the deadly rifle, ruthlessly slaughters the poor inoffensive animals. Poor timorous, meek looking creature, there seems to be no guile in thy mild and comely countenance, yet man, both white and black, are at enmity with thee! The "Boomerang," that curiously shaped wooden weapon, when thrown by the savage, whose practised hand directs its eccentric course, is alike fatal when within range. They seem to sniff the predaceous blacks in the wind, who cunningly and stealthily approach them lee-ward to cast their death dealing missile. When one of them falls, quick as lightning, and with incredible speed, the remainder bound off with astonishing leaps, to the fastness of the forest.

Serpents, of which I have a mortal fear, and as ugly and loathsome as appeared the first one after beguiling "Mother Eve," were more numerous than I had hitherto seen them. Some species have absolutely "the jaws of death," their bite is fatal, while others are more or less dangerous.

I shall ever remember when at Toowoomba, some eighty miles from Brisbane, a rich grazing district, which reaches from the summit of the great dividing range to the Darling Downs, how near I was to a deadly black snake, which glides about the tree tops with the same facility they do on the ground. Singular as it may seem, they appear to have a penchant for figs. I, too, confess to a weakness of the same kind, and with the permission of a friend, was indulging to my heart's content in some luscious fruit on the upper branches of a large tree in his garden, when, to my horror and dismay, I beheld several disgusting snakes wriggling towards me. I vacated in a summary manner, at the peril of broken bones.

The black and white wattle trees, Acacia affinis and A. mollissima, seemed alive with wood ducks, so named from their habits of perching and roosting among the branches of high trees. As I stood to gaze upon this fertile spot, teeming with agricultural and mineral wealth, a splendid crane, Grus Australis, stalked by without exhibiting the least symptom of alarm. It is a large and stately bird, gay in its bright red hood, which covers the back part of the head, and meets like a fancy cravat or necktie round the throat.

After being several days out, and still pursuing the same course, we crossed a number of small streams, and finally struck the Maquarie River. While passing through the river region we frequently met with large tracts of Marsilea macropus, or Australian Nardoo. It is a sub-acquatic plant, and covers extensive fields in the low or swampy grounds. The natives collect and prepare it for food by pounding it to a mass, which is then rolled into balls and covered with hot ashes to bake; when so prepared they seem to relish it.

When the luckless traveler's appetite is sharpened by hunger, almost anything that can be swallowed to appease the craving for food is greedily seized, as was a quantity of Nardoo, found in a "gunya," or native hut, by the only survivor of the ill-fated Burk's exploring party, and which sustained the wretched man for two weeks. Newly baked Nardoo approximates more to the consistency and taste of hot putty than any other substance I can compare it to, and is about as nutritious as a southern clay eater's food, with which he regales his vitiated appetite.

Vast and extensive undulating prairie-like plains, which at intervals are varied by the wildest of earthly scenes, alternate with the impenetrable jungle, scrub, and illimitable forests.

Some two or three hundred miles from the coast, on the elevated table lands, is the great wool growing region, where countless flocks, spreading for miles, fatten upon the rich grasses which roll like the billowy sea in deep smaragdine waves. There, too, horses and cattle increase and multiply amazingly, and to such an extent as to greatly diminish their value. Hundreds and thousands may be seen herding together.

As we strolled along the bed of a dried up water course, which only flows during heavy rains, we were led to a deep and romantic pass, guarded on each side by grand old rocks, nearly half a mile in perpendicular height, and seemed as if riven asunder by some supernatural agency or convulsive throbs of nature. Here we paused to contemplate and reflect on "what aspects old Time in his progress has worn" from the beginning until now.

At best but a mere speck, an atom, on the earth's surface—man seems indeed but a puny creature, weak and feeble, when he looks around

and feels bewildered with the stupendous and wonderful works of Him "who laid the foundations of the earth." This deep defile was about two miles wide and sixteen in length. In the bottom were several deep pools and minature lakes, well stocked with fish, and literally covered with water fowl. How the fish had got there was a puzzle to my inquiring mind, and a mystery I could not solve—it seemed beyond human ken.

Here I met with a solitary specimen of Phyllocladus rhomboides, remarkable as being the only one I ever met with in Australia. In New Zealand I saw thousands of them. It is a handsome tree of the genus Taxaceæ, and generally known as the celery topped pine.

Some of the ponds were completely hidden beneath the luxuriant foliage of the Nelumbium speciosum, or the Sacred Lotus. It is a beautiful acquatic plant, nearly allied to the Nympheas, or water lilies. In the lagoons and estuaries of the Murry, Darling, Warrengo and Murrumbigee Rivers, they grow in vast quantities.

The history of the Sacred Lotus, has frequently been given by modern writers, who quote from Herodotus, Strabo, and Theophrastus, who each mention it, and describe the religious associations connected therewith. It was held in the greatest veneration by the heathenish devotees of Isis.

The Egyptian bean of Pythagoras is supposed to be the fruit or seed of the Nelumbium he alludes to. The color of the flowers are light pink, and in form are very beautiful; both roots and seeds are edible. There are about seven or eight species in all, and are widely dispersed from India to Egypt, Australia, Malabar, Jamaica, the Caspean Sea, and several parts of the United States of America. I planted some Nelumbium luteum in Cleveland, Ohio, which I procured at Sandusky; and also in Fairmount Park, Philadelphia, which I dug from a creek flowing to the Schuylkill, at the Neck, near the city.

"Fair Flora" seemed to have chosen this beautiful defile as a garden spot wherein to grow her flowers, and had lavishly and profusely scattered them around. Some of her loveliest and fairest floriferous productions were expanding their charms in all their native grandeur. The graceful Babingtonia camphorosma, a perfect mass of prettiness, like coy beauties, were peeping through their leafy bowers; with Boronias, blended Banksia integrifolia, a really handsome shrub, and is to be found generally under cultivation in the colonists' gardens; it is called the Australian Honeysuckle, and is remarkable for the quantity of honey stored in its pretty flowers. A more gayish beauty, in gay attire, was the Grevillea robusta or silk oak. It is a noble tree, often attaining to one hundred and forty feet high, and is a fine representative of the order Proteaceæ, to which it belongs. The varieties are numerous, and well known to the *practical* gardener. They are a peculiar genus, and well worthy a place in every conservatory; the flowers are mostly red, and are produced on long spikes, often measuring from ten to fifteen inches in length.

Some fine Dendrobium cassythoides, a climbing orchid, allied to the Vanilla, had embraced the trunk of a splendid Flindersia australis or Australian Mahogany, a useful and beautiful tree, the wood of which is valuable for cabinet work.

This charming locality seemed to abound in Westringea rosemarinifolia, so like a Rosemary in habit of growth and foliage, but unlike one in its florescent state. Its flowers are a pretty pale blue and very profuse. It is a very ornamental evergreen shrub, and grows to about eight or ten feet high.

Sphenotoma capitata, with their dense heads of immaculate blossoms, looked like mounds of snow. Pultnæas, and when I mention them, it seems rather invidious to name any in particular, as all that interesting family are as pretty as they well can be. Their comely garments of various shades of green, mottled with golden clusters of flowers, are beautiful indeed. Here they seemed to surround us as we gently stepped among them while passing along.

I noticed several terrestrial orchids, namely, Prasophyllum fimbriatum, a kind more singular than beautiful, Pterostylis gibbosa, P. reflexa and P. grandiflora, with other interesting kinds; also fine specimens of Trichilia glandulosa, a very ornamental tree, growing from seventy to one hundred feet high, of symmetrical form.

The richest and softest of living carpets, Lycopodium densum, spread thickly beneath the noble trees, flowers and shrubs, which adorned this floral defile, where I could truly say "pure emotion, kindled by the sweetness of nature, sufficed to please" the appreciative traveler who

heartily thanked God for the boon of beholding so fair a scene.

In all probability the Caucasian's foot had seldom, if ever, brushed the dew from the grass, or left its imprint on the soil of this primeval glen, with its myriads of flowers, where we wandered at will.

As a fitting accompaniment to the romantic scene, I watched the gambols of two Satin Bower birds, Ptelorcorhynchus holosericeus; the plumage of the male bird is a beautiful black satin-like texture; nothing could be more interesting than the habits of the Bower birds, they seem to exhibit a taste for architecture, and weave together twigs, leaves and feathers, and construct little arbors with them, to and from which are neatly formed covered passage ways, through which they run in and out after each other, in a very amusing and playful manner. It is really laughable to see them meet and profoundly and respectfully bow to each other. No courtier, belle or beaux, however schooled in etiquette, could possibly salute each other with more grace of manner than do these singular birds; they seem the very models of Chesterfieldian politeness. Their little love bowers are tastefully and cunningly constructed.

The ever present Turquoisine Parrots made things lively above as they chattered incessantly in the trees, while the lovely little zebra grass parrots hopped about the grass and low bushes; its note is not so ear torturing as are some of its bigger kindred. This exquisite little creature is one of the most interesting and beautiful of cage birds, thousands of which are annually imported to England and various parts of Europe; see "Gould's Ornithology of Australia," published in 1841, in which they are fully described.

Feeling assured that I should never return again to "view those scenes so charming," which everywhere presented some original and pleasant features, and delighted the senses and filled the heart with such earthly joys, I decided to remain until the next day. Heaven knows a poor horticulturist as I was, that I felt "as happy as a king" and "as rich as a Rothschild" in the sequestered arcadia where I camped for the night.

My cup of bliss was filled to the brim, and the nectar was sweet which the soul quaffed, and felt satisfied that there was happiness on earth. The soft and refreshing night breezes were gently playing among the trees, and wafted the "balm of a thousand flowers" fresh from the great laboratory of nature, and which would have delighted the olfactory organs of a Phalon, Lubin or Rimmel with their exquisite perfume. The twinkling stars, bright celestial gems, glittered and sparkled in the blue arch above, like fairy lamps lighting the sky.

Stretched on the ground, snugly wrapped in a Wombat-skin rug, and with a Banksia log for a pillow, thinking of beloved ones afar, and recalling the poet's words,

> "O'er the past too fondly wandering,
> On the hopeless future pondering."

went soundly to sleep on a bed of flowers. Some time near midnight I awoke with an idea that somebody was touching me to see if I was asleep or not. Perhaps some cut-throat, bush-ranger or treacherous native was about to rob and murder me. With the courage of the Cid, grasping my gun, I sprang to my feet on the defensive, feeling determined to do something to somebody, but not a soul could I see. "The sweet silver light bonny moon," in full splendor, illumined the forest with the light of her silvery sheen, so peculiar to New Holland. Looking around for the intruder, but a few paces from me, and evidently more astonished than I, stood an inoffensive little Wombat, which in its nocturnal wanderings had stopped to ascertain what usurper was ensconsed within its fellow Wombat's skin. With a hearty laugh at the poor animal, I bid him good-night and went back to dream-land again.

Refreshed with sweet slumbers, we awoke with the morning chorus of thousands of plumaged birds, whose unmusical notes seemed strangely out of tune in the noisy burlesque of ornithological carrols. After the morning's ablutions among Lotus and water lilies, we breakfasted and traveled on. Leaving the middle of the valley for the shady side of the lofty and rugged cliffs, we were delighted beyond measure with the many Helichrysum apiculatum bushes which clung to the steep face of the frowning rocks. As a greenhouse plant they rank high among the rare and beautiful. I suppose every *practical* gardener remembers Helichrysum odoratissimum as "one among ten thousand." Running among them were the most luxuriant Eustrephus latifolius, a pretty evergreen climber as I ever saw, their light purple flowers are uncommonly beautiful. The ornamental Ficus mutia, an evergreen shrub, had accommodated itself in a fissure at a considerable altitude, where it stood all "alone in its glory." The curious green-flowering herbaceous plant, Geitonoplesium

montanum, grew in masses on the scarped sides of the rocks in pleasing contrast to its more showy compeers. Goodyeria gracilis and G. heterophylla, the former a pretty yellow flowering kind, and the latter red, two as handsome herbaceous plants as are to be met with, formed handsome beds at the base. Kennedya coccinea and K. ovata, with several other beautiful evergreen climbers, draped the projecting crags, where they hung like curtains or screens of pretty foliage and flowers.

As we neared the opening of this wildly picturesque defile we had so happily rambled through, we were delightfully surprised with the number of Telopea speciosissima, so beautiful and brilliant were they in the full blaze of scarlet flowers. In the greenhouse, it is one of the most conspicuous ornaments.

The most rugged surface man ever attempted to pass over was before us. Ugly masses of conglomerate ironstone rock, varied with lumps of sharp edged quartz, were scattered in every conceivable way, as if to prevent our further progress. Truly it was "a hard road to travel," but the worst plague I ever encountered was awaiting us further on. Our onward course, in the direction we were pursuing, was abruptly checked by a nettle brake, which stretched to a considerable extent before us. A previous acquaintance with them had taught me that nothing mortal could ever be induced to face one a second time after once experiencing the infernal torture they are capable of inflicting.

Urtica gigas, the gigantic stinging nettle of Australia, known as the "traveler's terror," and well named indeed. I do not remember ever having met with a more terrible vegetable monster than the subject under notice. Most of the *Monthly* readers are well acquainted with the common stinging nettle, Urtica dioica, and have a lively remembrance of how keenly they were made to smart when incautiously handling them; the sensation of pain, though sharp enough, is of a very mild type when compared to the torture inflicted by the Australian pest. The fabulous effects of the baneful Upas tree of Java, Antiarus toxicaria, could not possibly be worse or more to be dreaded by man or beast, than this diabolical nettle tree of New Holland.

In a previous communication I alluded to having seen U. ferox growing in New Zealand, and fierce and formidable they were, but were somewhat dwarfed by its gigantic compeers U. gigas, the stings of which cause a maddening pain, almost beyond enduring, the effects of which are dangerous indeed. From forty to sixty feet high is a usual size, with a stout tree like trunk. The foliage is gigantic too, having measured leaves of sixteen inches. The nearest comparison to this horrid barrier I ever saw, was a Cactus hedge, in Central America, the thoughts of which stop my communication with a shudder.

HOT WATER EXPERIENCE.

BY A. P. JONES FOND DU LAC, WIS.

According to your wish, I will give you my experience in heating greenhouse. I built my greenhouse in the fall of 1870—(54x16.) Put in a flue for heating, 56 feet on the ground and 25 foot high chimney. The flue was 6 inches wide and 1 foot deep inside. Then I had the fire-place built 4 feet square, with two separate fire holes, two doors and two grates; then I put in a coil of pipe in one of the fire holes for heating water in propagating tank. Flue bothered all winter by smoking—no draught, and by being a great deal colder on farther end of house than at the end nearest the fire hole—generally ten degrees difference, and could hardly ever get the farther end of the flue warmer than blood heat. The next winter, 1871, I rebuilt a part of my flue and fire holes, put in a coil of pipe, (1 inch gas pipe), instead of grate; then I put in T's between my grate and propagating tank, and run a pipe around the house as far as the chimney and back to grate; this helped to heat house very much, besides affording me means to regulate the heat in tank by means of valves; but the flue would smoke in all damp weather, or when the fire was first started.

I cannot tell how much wood I burned, as the wood was used from the same pile that was used in the dwelling house, but I do know that it was a continual stream of wood, and continual firing up; especially the first winter, besides the damage it must have been by its continual smoking; and I made up my mind that if I should have a thousand greenhouses, that not another brick flue should ever be built in them. Accordingly, I commenced corresponding with all the manufacturers of heating apparatus that I could hear of, and I at last decided on the one to get, although not the cheapest, but the dearest one that I had offered to me, and that was "Hitchings" No. 15, corrugated boiler, with 220 feet 3 inch pipe, and I can say with much pride and confidence, that it works to perfection! In the

coldest weather the thermometer does not vary over 3 or 4 degrees in any part of the house; and I am using peat at twenty cents per 100 lbs., and it takes from 75 to 100 lbs. per day when the thermometer is 0 to 10 below zero outside to keep the temperature at 50 to 55 inside—water in pipes at 140 to 150; and I intend to put another greenhouse up, 60 by 14, to be heated by the same boiler, as soon as I can make it pay to do so. I have burned some coal this winter, but find that it makes too strong a heat with the apparatus that I now have. My greatest difficulty is to keep the fire small enough, and to keep it burning the longest, and I find that peat comes the nearest to what I want until I have more house or room to heat.

Now, Mr. Editor, I think it depends altogether on the way the pipes are laid or arranged in heating greenhouses, when they are less than 100 feet in length. I am positive that one, or even two houses of 50 feet can be heated more economical and better by hot water than by flue, if the hot water apparatus is of the right kind and properly arranged and set up.

I will send you a diagram of my boiler and pipes if you wish it, and would say that I would like to hear from some more experienced greenhouse man upon this subject, as I intend to make some alterations in my house, and perhaps build more in addition to what I now have, and am anxious to get all the information I can.

We have had seven days here that the thermometer was below zero, and went as low as 34, and my greenhouse has not been below 48 F. this winter, and shall consider my heating apparatus all right until we get colder weather.

[Send plans and the cost.—Ed.]

CIRCULATION OF HOT WATER. ASCENDING vs. THE DESCENDING PRINCIPLE.

BY CHAS. F. HITCHINGS, NEW YORK.

In the *Gardener's Monthly* for January, page 14, reference is again made to the principle of laying the line of heating pipes in a greenhouse, on a constant descent from the highest to the lowest parts of the boiler, so that the pipes and boiler form a triangle, with the boiler one side of the triangle, as decribed in the September number of the *Monthly*. It is claimed that the most rapid circulation of water is secured when the pipes are laid on this descending principle, and consequently the most efficient apparatus.

Unquestionably water will circulate through pipes so laid, but not with the same rapidity or efficiency as it does when the boiler is placed below the line of heating pipes in the usual manner; nor does the descending plan offer the same advantages in locating the pipes within the house, nor the same facilities in laying pipes to convey heat from the same boiler to several houses, or several divisions of the same house, without obstructing the paths and doorways.

The circulation of water is due to the difference in the density of two columns of water, the one of water expanded by heat and contained within the boiler and the ascending flow pipe, the other the column of water within the descending return pipe, which is at a lower temperature and consequently more dense; and the rapidity of the circulation increases with the increased height and greater difference in the temperature of these two columns of water. This being the case, it follows that the height of the ascending and descending columns of water is of the first importance. To secure this, the boiler is placed below the level of the house which it is intended to warm, and the flow and return pipes carried upward from the boiler to connect with the heating pipes within the house, then from the point of connection with the vertical pipes from the boiler; the heating pipes, both flow and return, should be carried round the house, both on the same grade, either level or with an ascent as they leave the boiler, as may best suit the levels of the house. Any ascent to the line of heating pipes increases the force of the circulation.

By the arrangement described, we have the full effect of the height of the column of water within the boiler and ascending flow pipe, at the highest temperature and most expanded state produced by the fire, opposing a column of cooler water of similar height within the descending return pipe,—water that has made the entire circuit of the heating pipes and has been reduced in temperature equal to the amount of heat imparted to the atmosphere through which the pipes have passed, and consequently has attained the lowest temperature and greatest density when it enters the descending pipe to add force to the current. Nor do the advantages stop here; when the boiler is set below the level of the house which is to be warmed, the main pipes leading from the boiler may be readily carried below the level of the doorways and paths with branch pipes rising at suitable points in the house or in several houses near or adjoining, and there connect with the several lines of heat-

ing pipes, and the water will circulate through all with promptness and certainty. It also admits of placing the heating pipes under the side benches and near the floor, where the heat radiated from them is most effective in warming the house.

Thus far I have endeavored to explain the advantages of elevating the heating pipes above the boiler, and the necessity of making a quick descent in the return from these pipes to the bottom of the boiler.

Now if we turn our attention to the descending plan, we find that the conditions necessary to produce the quickest circulation are not so fully carried out. The height of the opposing columns of water is limited to the distance between the upper and lower pipes at the boiler, this in practice cannot exceed two, or at most three feet, without placing the upper pipe at an inconvenient distance from the floor, and where the heat from it would be less effective in heating the house. Then when the line of pipes is laid with a gradual descent from the top to the bottom of the boiler, the force exerted by the descending column of water is but little more than one-half of that which is properly due to the height of the column and the difference in temperature of the two ends of the pipe, for the reason that the water is reduced in heat and increased in density gradually as it descends from the high point through the line of pipes, and when it has reached the end of the line and attained the lowest temperature and greatest density, it has already reached the lowest point in the descent and ceases to exert force, so that instead of the effective force due to the height of the columns of water at the extremes of temperature, we have only the force due to the average temperature of the whole line of pipe.

Even should we set aside the fact of the diminished force of the circulation, there still remains the objections and difficulties in the arrangement of the pipes to avoid obstructing the doorways and paths. It would be impracticable to follow this plan and carry the heating pipes into several detached or adjoining houses, or to regulate or stop off the heat from the pipes in several divisions of the same house (as is frequently done when pipes are laid in the usual manner) without interfering with the doorways and paths, and without waste of material and heat.

To my mind, there is not a single advantage attending this plan, except perhaps the saving in the depth of the boiler pit; even in that respect the advantage is doubtful, as there is another and in some respects a better way of accomplishing that object when absolutely necessary to do so.

FORCING BY NATURAL HEAT.

BY JAMES WEED, MUSCATINE, IOWA.

A writer in the *Scientific American*, of November 23d, upon "Scientific and Mechanical Possibilities," says:

"Heat increases about one degree to every fifty feet that we penetrate the earth; shafts are now sometimes sunk to a depth of 2,000 feet. It is not within the possibility of mechanism to bore 4,000 feet more. At that depth we should find a heat of at least one hundred and fifty degrees, and in many places even greater than this. Mechanical power could be obtained from the steam and water forced up from this depth. Heated water and steam from these wells could be carried into our houses and warm our dwellings to a summer temperature. Conducted in pipes under the soil protected by glass, we could cheaply grow in New England, all of the Southern and tropical plants and vegetables. The snow could be kept melted from the streets of New York, and all of the buildings warmed from this spontaneous flow; useful also for cooking and other purposes.

The Garden of Plants in Paris is heated by water from an artesian well 1800 feet deep, which has a temperature of 82° Fah., and is carried in pipes under the soil. A salad garden at Erfurt, in Saxony, is heated in the same manner, and is said to have yielded $60,000 a year to the proprietor."

That the cost of artesian wells is not too great to grow tropical plants in New England *cheaply* by heat thus obtained, is not shown. Whether the internal heat of the earth cannot be made available for winter forcing, is a question worthy of careful consideration.

In this locality a uniform temperature of 52° is found at a depth of not more than twenty feet, and probably it would be about the same in the latitude of 42° from this to New England.

It would seem to be among "scientific and mechanical possibilities" to utilize this *proxi-*

mate internal heat, in securing to plant structures a proper night temperature, which need not be above 45° for greenhouses—the sun, in bright days, giving a day temperature of sixty to eighty degrees. This, *cheaply* accomplished, will it not inaugurate a new era in winter gardening?

SMALL GREENHOUSE.

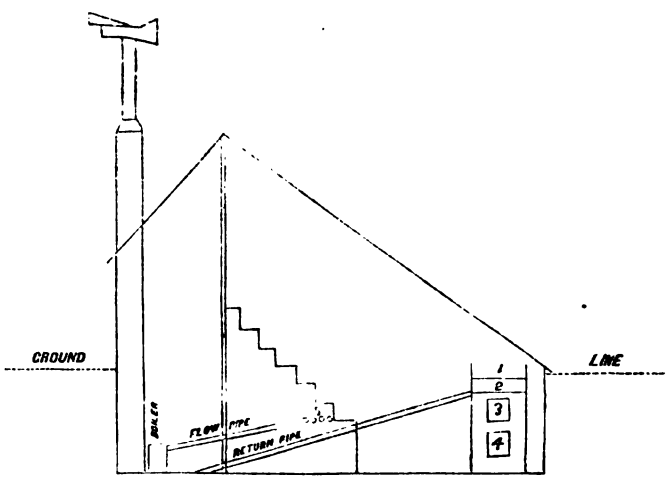
BY W. C. STRIPE, KEOKUK, IOWA.

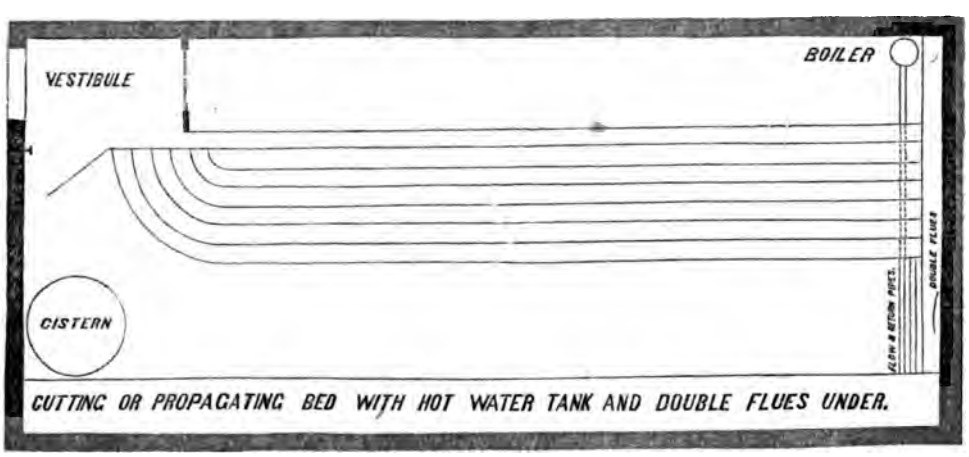
Agreeable to promise I herewith hand you a plan and estimate of my greenhouse recently erected. It answers my fullest expectation, and I am entirely satisfied with the operation of the boiler, which I procured from Mr. Ellis of New York. It has generally been supposed that the erection of a greenhouse entails a great expense; mine cost as follows:

Brick work,	$103
Carpenter work,	145
Boiler,	60
Pipes,	55
Incidentals,	50
Glass,	42
Total,	$455

I would not be without it for thrice the cost. The furnace is charged at 6 P. M., and everything is warm and comfortable next morning.

The house is 35x15 feet in the clear (inside). The potting table is under the stage, the flue running around one end, and the front, and doubling on itself. It will work admirably and to my entire satisfaction.





EDITORIAL NOTES.

FOREIGN.

The Chrysanthemum. This beautiful fall blooming plant maintains a high popularity in England. As a guide to some of the best varieties still grown in England, we copy the following from an article in Shirley Hibberd's Magazine:

"Not only are all the new and most popular kinds represented, but old flowers which were at one time held in high estimation, but are now nearly forgotten, had a place allotted them. Here was Etoile Polaire, an incurved flower of the deepest yellow, which is but little known, although one of the best in its color. Then there are also examples of Beaute du Nord, rich violet carmine, a glorious shade of color; Madam Poggi, brownish crimson, wonderfully effective; Prince Albert, another flower of the richest shade of crimson; Progne, Amaranth, Triomphe du Nord, reddish chestnut and wonderfully deep crimson, very large and showy. Of those which are well known, Guernsey Nugget was represented by plants bearing flowers six inches in diameter; Miss Isabella Bott, with flowers proportionately large, as also were General Bainbrigge, Golden Trilby, which I sent out many years ago, and which well holds its own against new comers; Miss Marcheaux, Mrs. G. Rundle, which should be grown in every conservatory in the country for its fine habit, freedom of flowering, and the purity of its flowers; White Globe, Miss Mary Morgan, Prince of Wales, Lord Derby, Prince Alfred, Venus, and others too numerons to mention."

How to get Pyramidal Grown Plum Trees. *Scott's Orchardist* says:

"I have found that Plums are more difficult to manage as pyramids than any other kind of fruit tree. To overcome their seeming obstinacy, I found that by leaving them upon short stems, eighteen inches to two feet, and regularly taking them up without cutting either the roots or branches much, replanting them *on a hardened surface*, merely covering the roots a few inches deep, they were as manageable as the others."

Soil for the Paradise Apple Stocks. Scott says in his *Orchardist*, that the Paradise stock is admirably suited to wet soils, where the common stock will not do well. Of these dwarf apples he says:

"Dwarf bushes, on my *Pommier de Paradis* stocks are useful in small gardens, where space cannot be spared for large trees, and are easily managed by thinning the branches and keeping them short by pruning in winter, or by pinching them in *once*, in summer, taking care not to pinch too close, as then they will be a mass of unripened young wood unfit to bear fruit; however, when a tree begins to get too gross, or to grow too much, take it up and replant. This is an easy matter with trees upon the above stock, as all the roots are near the surface, and like the Quince, form masses of fibre by being occasionally lifted. Apple culture, as pyramids or dwarf bushes, is very interesting, and to amateurs will be a source of pleasure and amusement, but I opine that the commercial cultivator will find his ends best served by growing tolerably large trees, under which he can grow other crops, notwithstanding what may have been said against his practice or his want of knowledge as a fruit tree cultivator."

The Anacharis alsinastrum. It seems to be the fashion of travelers to put on airs and to cut up generally when they get away from home, and plants seem to do much the same. A water weed, with the above long botanical name, does not interfere much with our disposition of American waters; but it found itself in England, and there grew to such an enormous extent as to obstruct navigation in some of the rivers. Swans were introduced to keep down the weed, but it appears the people are now crying out to be saved from their saviour:

"At a meeting of the Thames Angling Association held recently, a resolution was passed requesting the chairman (Mr. R. J. Gilman) and the officers of the association to form themselves into a sub committee, with a view to prevail upon the authorities to reduce the number of swans on the Thames, which belong partly to her Majesty, the Queen, and partly to two City Companies. A letter was addressed to the Lord Chamberlain by the committee, from which we take the following extract: 'These birds, as is well known to all who frequent the river, are very destructive of the fish-spawn. We do not desire their entire removal, but only the reduction of their number. We would also respectfully suggest that while in their excessive number mischievous here, a portion of them would be useful and ornamental in other public waters.' To this letter an answer was received by Mr. Withered, M. P., from the Lord Chamberlain's office, to the effect that there had been no increase of late in the number of her Majesty's swans, and that his lordship had no control over those belonging to the City Companies. His lordship had given directions that a gradual reduction should be made in the swans belonging to the Queen; but he would observe that when some few years ago, upon a similar complaint from the Thames Angling Preservation Society, a considerable reduction was made in their number, the weeds in the river increased so rapidly that on the representation of many persons connected with the river, anglers amongst others, it was thought that the number of swans should not be greatly diminished. Mr. T. O. Wethered, M. P., has written to thank the Lord Chamberlain for his answer, observing that whilst recognizing the use of the swans in checking the growth of weeds, he respectfully submits that the present number of birds is excessive, especially in the neighborhood of Marlow. On the last occasion of the swans being numbered, there were 372 grown birds and 145 cygnets. Mr. Wethered concluded by requesting an interview with the Lord Chamberlain."

Rose Stocks for Grafting On. The *Gardener's Magazine* is not satisfied that they have yet found the best stock. It thinks the choice will lie between the Dog Rose, and the Italian, as they call the Manetti. Let our English friends try our Prairie Rose and report on it. We suspect it will be found in this that America will

distance both England and Italy. The subject is becoming quite an exciting one in Europe.

Lilium Washingtonianum. This lily, not many years ago named and described by Prof. Alphonso Wood, is becoming rapidly popular in Europe. Large consignments of bulbs from California are being sold at high prices in England.

A Great Walker. We find the following paragraph in an English paper. The person referred to was an employee of the father of the writer. As he has trained one to walk so much and a son to write, some ingenious calculator might as well see how many times round the world the editor's printed lines would reach:

"According to a local contemporary, some man of figures has taken the trouble to compute the extraordinary distance walked by Mr. William Wheeler, a gardener of Brading, who has worked at Westridge, Ryde, for a period of fifty-one years, three months and seven days, and has during the present month left his employment. The distance from his home to Westridge is six miles, and for the period above mentioned he has walked there and back daily (with the exception of two day's holiday yearly and one month's absence through sickness.) This gives a total of 92,640 miles. Taking the circumference of the globe at 25,020 miles, it would appear that he has walked a distance of four times the circumference of the globe (except 4,440 miles) in going to and from his work. But if only one mile a day is allowed for walking about the garden, &c., then his pedestrian feat would be increased by 15,928 miles, making a total of 108,568, or four times the earth's circumference, with 11,488. miles to spare."

Extraordinary Growth of Grape Vines. Some of the French newspapers are analyzing General Pleasonton's figures in his blue glass pamphlet. A Monsieur De Jeune says that in five months from the time of planting, the vines had grown forty-five feet, which supposing they did not start in a very rapid growth for some weeks after planting would make a *daily* growth of between four and five inches. He says there were thirty vines, each with forty-five feet of wood, which bore fruit the following year, and he says "on the best authority," there was estimated 12,000 lbs. of grapes. This is 343 lbs. to each vine. Supposing the odd five feet was all that these canes were shortened, leaving 40 feet to bear, and that the nodes or eyes were nine inches apart, and that two bunches were left from each eye, it would give 3½ lbs. to each bunch of grapes. But as it is not likely he says every bunch was exactly the same weight, some less than this, he thinks many might have been four or five lbs. The next year he says the same canes produced ten ton—22,000 lbs., this giving an average of six lbs. to each bunch. He says he believes, therefore, in blue glass, and we think he ought to

There is no doubt but General Pleasanton had a magnificent crop of grapes, and it is to be regretted that so many figures were merely *estimated.*

Colors on Plant Life. M. P. Bert, in the *Horticole Belgique*, has been going over the experiments of General Pleasanton, and after detailing the different degrees of *injury* resulting from various colored glasses, concludes by saying:

"Lastly, all colors, *taken alone*, are detrimental to plant life; their union in the proportions constituting ordinary or white light is requisite to healthy vegetation, and it therefore behooves horticulturists to renounce the idea of employing colored glasses or other colored materials for glasshouses and garden frames."

A recent writer on the Dead Sea Flora says he saw "quantities of Maiden Hair flourishing in a waterfall not more than twenty yards from the Sea." In America he would probably find considerably more of Jute in the waterfall than Maiden Hair, or any other kind of hair.

EDITORIAL.

NEGLECTED AMERICAN TREES AND SHRUBS.

In a letter before us, Dr. Hooker of the Royal Gardens, Kew, expresses his surprise that after examining American nursery catalogues, he learns that but few of the many beautiful trees and shrubs of America are systematically cultivated! But Dr. Hooker will doubtless be still more surprised when he learns why this is. It is not because these beautiful plants are not appreciated, but because the most of our rarer kinds of nursery stock is imported from Europe, and we are of course unable to sell again what they have not on hand to sell to us. In regard to these native trees we have great difficulty. A very large number of American nurserymen

do not understand the business. They will graft fruit trees—no country can produce men who can equal American propagators in this line—but when it comes to seed raising, or propagating rare trees and plants rapidly and cheaply, they know nothing at all. There are not perhaps, a score of nursery firms in America to-day, which could take in hand a general assortment of plants as an European nursery would, and go through with their successful propagation.

But there is yet another difficulty. The price of labor—skilled labor is enormous; and with the heavy competition of European stock, very few American nurserymen can afford to pay for the intelligent labor necessary to raise this stock, if even they be convinced of the value of possessing it. It may be objected that surely the "score or so" of intelligent firms referred to might be exceptions. They might show some attention to these neglected things. Still there are difficulties. First, there are few chances of finding any one in the locations where the neglected things grow, who knows them and would get them. Secondly, if they can be had, it costs enormously to get them, as the average American man will not go out of his ordinary track to do a job of this kind, unless he can make five or ten fold his average day's wages. Perchance a few individuals of a less grasping kind are found, but these often go about the work honestly, but so clumsily, that a very large bill for a very small stock is the result, and the enterprise is disheartening in the extreme.

One might think, however, that having overcome all these obstacles, and some desired rarity obtained, then it would be easy for these few intelligent firms to increase them rapidly, and then get a heavy sale for them. Alas! No! The American tree lover rarely visits an American nursery. He has no time for this. He is fond of these rare things, and would gladly have them. He reads about them in the books and magazines, and wishes he could get them. Though they may probably be grown by the hundreds in his next door neighbor's nursery grounds, he does not know it. Catalogues are sent him, but he has no time to read them, or if he reads, no time to make out a list and send for them. So the matter goes, and at last the tree agent comes along with his score or two of common things, the order is taken, and there is no room for more. It is probably not far wrong to say that not one hundredth part of the trees and shrubs sold in the United States are between the nurseryman and the customer direct; and that probably not one in a thousand who buy trees and plants were ever in a nursery where trees and plants are raised. One may go through some of our most popular nurseries day after day, or week after week, and rarely find a visitor interested in the subject, unless it be a peddler, dealer or nurseryman on the lookout for saleable stock. If people who like these pretty things were to go to nurseries and thus personally encourage the culture of them, they would be raised; but those who do the selling—who stand between the producer and purchaser—know very little about the things they sell, and of only a few common things at any rate, and thus it is that there is hardly any encouragement to the enterprising nurseryman to introduce and propagate the rarer kinds.

In the letter referred to, Dr. Hooker kindly suggests that "probably the taste for these beautiful American trees and shrubs is not highly developed," but we think it is. It is not the lack of appreciation, but the supposed lack of time which keeps the nurseryman and his customer forever apart. Some of our most popular trees and shrubs are Americans. The Hemlock Spruce and the American Arborvitæ are universally grown and planted by hundreds of thousands; and the Balsam Fir, and the White Pine are also very popular; but these would not be in the demand they are, if they had not got into the hands of dealers and pedlars, who "push" them everywhere. The Holly, the Sweet Magnolia, the Wood Azalea, the Rhododendron, the numerous Andromedas, the Stuartias and Franklinias, rare deciduous and evergreen trees and shrubs, as well as beautiful native plants in great numbers, are well known and appreciated by the American people. But the difficulties we have mentioned, and especially the difficulty of getting the lovers of these things to go to nurseries and let the raisers know of their regard for these things, have hitherto been the great barriers to their wide dissemination.

OBITUARY.

MR. SAMUEL FEAST.

We have only just learned that our good friend has passed away, and beyond the simple fact have no particulars of time or place. The Feasts have been, we may say, for several generations intimately connected with horticultural Baltimore, and in connection with the Camellia,

Prairie Roses, and other matters, have a world wide reputation.

He was one of the earliest friends of the *Gardener's Monthly*, and so continued up to the time of his death. Last year he sent us sixty subscribers, and always had a good word for us in every way. It was not our good fortune to meet him often enough to know him intimately, and should be glad if some of his personal friends would contribute a worthier sketch of his life and services to horticulture.

LUTHER TUCKER.

After the *Gardener's Monthly* went to press last month, came the news of the death of this distinguished man. We do not refer to it now as a mere matter of news, but we cannot let the occasion pass by without reminding our readers how much horticulture as well as agriculture is indebted to the good friend who has passed away.

The several notices which have appeared of him tell what he has done for agriculture, and truly this has been much. He was the father, or at least one of the early fathers of our present high grade of agricultural literature; but even this to our mind is not so great a subject for gratitude as that he left us the *Country Gentleman*, which, as we have freely stated on several occasions, is equal if not superior in ability to any similar journal published in the old world. It is one of these distinctively American institutions of which all of us have long been proud. But we are not sure but we owe him as much as the agricultural folks do. He was the original publisher of the *Horticulturist*, under the editorship of A. J Downing Whether he was the instigator of this publication, or whether the idea and plan were altogether Downing's, we never knew; but their nameswent together with the publication, and ceased together with Downing's death. Hovey's Magazine had done much to elevate American gardening; but with Downing and Tucker's Horticulturist, a seemingly new class of enthusiastic friends of the cause came into being; and we all know that it is one of the most marked eras in American garden history.

But his interest in American gardening did not pass away with his ownership of the *Horticulturist*. The *Country Gentleman* has been of marked service to it. In those branches of gardening in which almost every farmer may interest himself, the paper has always borne a high character. At his death, Mr. Tucker was seventy-one years of age.

J. S. DOWNER.

Just as we go to press we learn, with regret, of the death of Mr. J. S. Downer, of Fairview, Kentucky, which occurred on the 10th of February.

So soon following another of Kentucky's energetic horticulturists, Mr. Laurence Young, his loss will be the more keenly felt. For forty years Mr. Downer has occupied a very prominent position, and many of our best fruits owe their origin to him. His experiments in the cherry resulted in some first class varieties, some of which are yet indispensable to a complete list. Of late years he has been prominent in the improvement of the strawberry, Downer's Prolific, though now an old sort, is yet one of the best; and Charles Downing and Kentucky Late grow in public estimation.

Mr. Downer was the type of honor, and in his dealings with his fellow men, always commanded their esteem and highest regard. Painstaking in all he undertook, his seedlings when offered to the public were taken hold of without any hesitation, the public feeling satisfied that the name of Downer was a sufficient guarantee of excellence of character. His opinions in the American Pomological Society always carried weight, through the great confidence all felt in his intelligence and honor. At the last meeting at Richmond, in Virginia, he was among the most welcome of all the members present; and we well know that this announcement of his death will be received with sorrow by his late associates there especially, as well as by the whole horticultural public. Mr. Downer was 64 years of age.

EDITORIAL NOTES.

DOMESTIC.

The Commissioner of Agriculture. There has been of late a species of attack on Commissioner Watts, with which we do not sympathize. That he makes mistakes is certain. His ignominious dismissal of Dr. Parry, as we said at the time, was one of these. His criticism of Dr Parry's language, also has provoked a fair retort by the "want of perspicuity" in his own. In this respect his reports are by no means good models of the English language. There are also many other matters which, if one were disposed to be

critical, could very readily be turned against this officer, some of which from time to time, it seemed but our duty, in connection with some subject discussed, to freely state. But of late the opposition to the Judge has taken a very puerile turn, and we feel as much disposed to protest against this as to criticize real defects. It is charged that his sons are appointed to clerkships; but if they are respectable, educated men, and fit for the position, why not they as well as any others? And then he "distributes seeds." That this is a waste in many respects we believe, and have freely stated; but he did not inaugurate this, and if he were out to-morrow, we suspect his successor would have to distribute seeds all the same. But perhaps the silliest attack was in the House of Representatives, when Mr. Farnsworth supposed the Commissioner cooked the seeds of the department for his own family table! It was not bad when another member responded that a former Commissioner had occasionally "made butter for the Presidential table"—and indeed the whole matter reminds one of the attacks made on the former Commissioners, Newton and Capron.

But Mr. Cox furnished the climax He does not like Latin names for bugs and plants—and the Commissioner has been guilty of the great enormity of using these in his annual reports! After taking some trouble to select and pronounce a few of what seemed to be hard names, Mr. Cox said in triumph, "now these reports have been published at great expense, and this information, sir, is of course, intended for the common people." But why blame Mr. Watts for Latin names? He does not make them. And if plants have no other, what is he to do? To be sure some things have common names, and it is possible some Commissioner may be found who will in such cases use these names. Then we may read in a Government report that "about this time the 'Skunk Pot' comes into flower, to be succeeded by 'Robin-run-in-the-hedge, followed by the 'Red-hot-Poker.' Children may find in shady places the 'Preacher in the Pulpit,' when it will be time to sow in good garden soil the 'Devil in the bush.' Those who have hanging baskets may put in the middle a 'Beef steak plant,' and around this set in a few sprigs of 'Aaron's beard,' and to hang over the edges a few plants of the 'Wandering Jew,' and see that 'Forget-me-not' be not forgotten. A few pieces of 'Blow-me-up' will give elegance to the whole, and if in early spring a 'Daffy down dilly' can be contrasted with the 'Hoop petticoat,' it will have a cheering effect."

The common people forsooth! We are tired of such stuff! Judge Watts is not a paragon; but judging by the past Commissioners, he is much about "as good as they make them," and as good as they are likely to be made at $3000 a year, unless some one can befound who expects to make the office subservient to some ulterior purpose.

Germantown Horticultural Society.—It is not perhaps generally known that Germantown has for the past twenty years been a part of Philadelphia, though originally it was a borough of some six miles away. It is an older place than old Philadelphia, having been settled by Swedes and Germans before the Philadelphia colony was formed under Penn. Being on high land, and some two or three feet above the Delaware River, and with the charming Wissahickon scenery forming a part of it, it has always been a popular place of resort for wealthy Philadelphians, as well as carrying on distinctive branches of business of its own. Whatever gardens old Philadelphia may have had, they have now mostly disappeared. Pratt's, Camac's, Longstreth's, McArran's, Landreth's and others have long since gone "into brick and mortar;" while McMahon's and some more have little more than some of the old buildings, or here and there a rare tree which happened to come into a street line to mark the spots so once celebrated. Indeed Germantown alone has managed to retain anything of much moment of the ancient garden character of Philadelphia. It was thought a great credit to Germantown that Mr. Robinson, the talented English Garden author, should say of it, that it was the only place in all his American travels, that reminded him of the careful cultivated gardening of his own country. Most of Philadelphia's leading botanists of the past age either resided in Germantown or spent most of their time there. Nuttall, McClure, Collins, Haines, and others known in scientific history, have all left the impress of their hands on the old place. For a little while Germantown rested under a cloud,—but with the passing of its railroad—the first in the United States—into the hands the Reading Railroad, and the consequent increased accommodations and care for the comfort of passengers, the grand old place has again revived, and is prospering in every line.

It is only meet that horticulture should pro-

gress with the rest, and the new Horticultural Society will assuredly become one of its leading institutions.

From the considerations given, the address of Mr. J. Jay Smith will possess more than a local interest,—and we have, therefore, made full notes of it for our readers in another column.

Capabilities of Kansas and Colorado.—Every once in a while we meet with people east who have somehow imbibed the notion that these far away countries are very poor places, that it hardly ever rains, and that trees "can't be made to grow there." We never believed so much as this,—but still it was a surprise to find on our first view of Kansas and Colorado that the popular view was so very far away from the truth. There is not a richer soil in the world, it does rain in most part of it, and where it does not rain, irrigation is a cheap and effective substitute,—and as for trees not growing, they will do as well as in any part of the world.

Col. Dickinson recently took occasion to correct some of the misapprehensions regarding these States, in some remarks before the New York Farmer's Club, which in the main we can confirm from our own experience. He says:

"It is at all times, sir, a pleasure to correct a misstatement, and particularly so when that correction makes our position stronger in asserting that the soil and climate of Kansas are as well adapted as any, and better than that of many of the States, for the production of all kinds of cereals, fruits, and vegetables. I would further say, Mr. Chairman, that there are some men who will never do well anywhere; if you would place them in Mahomet's seventh heaven, they would want then a place where somebody would wink their eye-lids for them. They are not willing to work, and they have looked to Kansas as a place where they can live without any exertion; they go there, and find it a mistake; then they complain. At the Soldiers' Convention in Philadelphia a few nights since, there was just such a man, and his voice was louder and his words were plentier than the best men there. He denounced Kansas as a place where a man could not make a living. But when he sat down some one got up and said that no wonder he found fault with Kansas, for he had been trying for forty years to live in Philadelphia without work, and was not worth a sou-markee; he tried Kansas, and as every man there had to "root hog or die," he came back to Philadelphia, where he could sponge on a few soft-hearted friends. In my opinion, no one man's statement should be taken as a guide for any section or State. In the multitude of counsel and with good judgment to discriminate, alone is there wisdom."

The lack of timber was the only drawback to *perfection.* But even this is not without some advantages. There is no forest to clear, no stumps in the road,—and as trees will grow there as well as anywhere when once planted, all people have to do is to plant them. The legislature is encouraging it. A law of Kansas says:

"Every person planting one acre or more of prairie land, within ten years after the passage of this act, with any kind of forest trees, and successfully growing and cultivating the same for three years, or one-half mile or more of forest trees along any public highway, said trees to be so planted as to stand at the end of said three years not more than one rod apart, shall be entitled to receive for twenty-five years, commencing three years after said grove or line of trees has been planted, an annual bounty of two dollars per acre for each acre so planted, and two dollars for one-half mile for each mile so planted, to be paid out of the treasury of the county in which said grove or line of trees may be situated. The bounty to be paid so long as said grove or trees are cultivated and kept alive, and kept in growing condition. That the County Assessor shall not assess lands planted and encumbered with forest trees any higher than the lands adjoining on account of the said lands being so encumbered; and that any person planting an osage or hawthorn fence, or who shall build of stone a fence of the height of four and one-half feet around any field, within ten years after the passage of this act, and successfully growing and cultivating the same, or keeping up the fence until it successfully resists stock, shall receive an annual bounty of $2 for every forty rods so planted and cultivated, or built and kept up—the bounty to commence as soon as said fence will entirely resist cattle, and to continue for eight years thereafter. Said bounty to be paid from the treasury of the county in which said fence may be situated."

American Pomological Society.—Col. Wilder, Secretary Elliott, and other good workers, are busy with the arrangements for the meeting of the Society next fall, in Boston. We have letters from these gentlemen, Mr. Saunders and others, all seeming enthusiastic in their efforts to make this one of the most valuable meetings in the Society's history. The President, Col. Wilder, feels a personal pride in this meeting near his own home, and is leaving nothing undone to make everything pleasant and agreeable in every way.

Paper Fruit and Berry Baskets.—We believe the *Gardener's Monthly* has the credit of inaugurating the movement which resulted in the attempt to make fruit baskets so cheap that they could be given away, and thus save much trouble in the return of crates and boxes to the fruit grower. Still the idea has not been wholly a success. Baskets and crates have still to be returned in large numbers.

In a recent issue of Purdy's *Fruit Recorder*, there is an account of a cheap *paper* basket which can be given away, and is as good in

every way as any wooden one. Mr. P. says it is an entire success.

Post-office Rulings.—Since our last went to press, some new concessions have been made in the Postmaster General's interpretations of the law. We pointed out that by the rulings up to that time we could not alter a figure in a price list, unless it were a bona-fide *proof sheet*, without subjecting the whole to letter postage. It is now decided that we may alter when the printed figures are manifestly not what they were intended to be; but no erasures or alterations, other than *corrections* are to be allowed. If, therefore, a nurseryman erases the name of an article of which he may have sold all, the receiver must pay letter postage on the catalogue.

Then it was ruled that the numerous small papers of seeds which seedsmen and others send in boxes, or under one envelope, gummed or pasted, must pay letter postage. Not only the one outside wrapper, but each little paper beneath "must be open at the ends." This is so absurd, that if insisted on, there might as well be no seed law. Few people would go to the trouble of folding each little package so that it could be open so as to be "examined without destroying the wrapper." A patent has recently been taken out for "oiled muslin transparent bags," and curiously enough the department rules simultaneously, that "transparent muslin bags" may be closed at the ends. Surely the paper in use by most seedsmen is transparent enough to show that it is really seeds and not "merchandize," without attempting to compel the whole United States to throw all its trade into the cap of one transparent bag firm.

There are yet some other matters we might refer to, but cannot afford the space. The whole of this post-office business has been a disgraceful piece of legislation. Mr. Cresswell himself has been compelled to appeal to the Attorney General for an interpretation of the laws, for it is conceded to be past the power of the most skilled grammarians to understand. It would be best to repeal the whole thing, and start anew.

Horticulturists and agriculturists probably make use of the mail to a greater extent than any other class. Wise post-office laws are so intimately connected with horticultural progress, that we have felt warranted in going out of our usual course in avoiding these questions. It has been our pride that the *Gardener's Monthly* should favor no religion and no politics. It ignores "free trade" and "protection,"—it is neither "Jew" nor "Gentile,"—it sides neither with the "north" nor with the "south,"—it seeks only to add to the horticultural pleasures of *man*, under whatever state or condition he is found. In the present case we found a matter which seemed to affect us all alike of every shade of thought and opinion, and we trust some good has resulted from our work.

SCRAPS AND QUERIES.

ERRATA.—In the article in the February number, "Short Purses and Dutch Bulbs," "Crantatus" should read *Orandatus;* "Lux Wiemer" should be *Sax Wiemer;* "domicil" should be *domain.*

OUR FEBRUARY NUMBER.—From some cause, which is a mystery to the editor, a very large number of letters have been received complimentary of the February number. One enthusiastic friend wishes it was "double the size, even though fourfold the price." It is probably owing to the extra interest which has been growing the past year in the spirits of our correspondents, who are aiding us generously with their little hints and observations from every section of the Union. Such encouragement always puts spirit into the dull soul of an editor. We have quite a number of good things on hand from valued correspondents, but still have abundant room for more.

PLANTS IN BLOOM in the Greenhouse and Conservatory at Rhosynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia. DECEMBER, 1872.

Abutilon	striatum,	Chinese bell
"	Thompsonianum,	"
"	vexillarium,	"
"	grandiflorum,	"

Ageratum	coeruleum,	Blue mist
"	mexicanum,	"
Azalea	Indica narcissiflora	
Bouvardia	Hogarth	
"	" Hendersonii	
"	tryphylla	
Cactus	speciosum, Crab cactus	
Browallia	Jamesonii	
Camellia	Jap. alba pleno, Japan Rose	
Canna	indica, Warscewiczii,	Indian
Cestrum	regale	[shot
Cuphea	Danielsiana, Cigar flower	
"	platycentra,	"
"	strigulosa,	"
Cypripedium	insigne, Ladies' slipper	
Daphne	odora, Spurge laurel	
Eupatorium	fruticosum, White mist	
Geranium	zonale, Crane's bill	
"	" var.	
Jasminum	grandiflorum, Jasmine	
Justicia	carnea	
Lopezia	lineata	
Malcomia	maritima, Virginian stock	
Narcissus	tazzetta alba, Narciss	
Olea	fragrans, Olive	
Oxalis	grandiflora, Sorrel	
"	versicolor,	"
Phlox	Drummondii, Phlox	
Primula	sinensis, Primrose	
Russellia	juncea	
Salvia	coccinea,	Sage
	involucrata,	"
	splendens,	"
Serrissa	foetida	
Solanum	jasminoides	
"	" variegata	
Tropaeolum	Lobbianum, Indian cress	
Veronica	speciosa, Speedwell	
"	" Andersonii	
Viburnum	suspensum	

Dwarf Evergreen Shrubs and Climbers that are very beautiful most of the winter in the open air, slightly protected from the full sun and cutting winds by Pines, Firs, &c.

Akebia	quinata	
Andromeda	pulverulenta	
Aucuba	Japonica	
"	" longifolia	
"	" macrophylla	
Buxus	arborea variegata aurea,	Box
"	" " alba	
"	Japonica	
Cotoneaster	microphylla	
Crataegus	pyracantha, Fiery thorn	
Daphne	pontica, Spurge laurel	
Eleagnus	hortensis	
"	" aurea marginatus	
Erica	carnea, Heath	
Evonymus	Japonicus,	Burning bush
"	" variegatus,	"
"	macrophylla, radicans fol.argenteo marginata"	
Gaultheria	procumbens, Tea berry	
Hedera	Helix	
"	" dentata,	Ivy
"	" hibernica,	"
"	" " variegata,	"
"	" maculata,	"
"	" tricolor,	"
Ilex	Aquifolium, Holly	
"	cornuta,	"
"	opaca,	"
Kalmia	latifolia, Sheep laurel	
"	glauca,	"
Ligustrum	sempervirens, Privet	
Lonicera	brachypoda,	Honeysuckle
"	" reticulata,	"
"	flexuosa,	"
Magnolia	grandiflora,	Magnolia
"	" ferruginea,	"
"	angustifolia,	"
Mahonia	Aquifolium,	Barberry
"	Japonica,	"
"	" Beali,	"
"	repens,	"
Mitchella	repens, Partridge berry	
Rhododendron	ameenum, Rose bay	
"	Catawbiense,	"
"	Cunninghamii,	"
"	maximum,	"
"	ponticum,	"
"	punctatum,	" [cotton
Santolina	chamaecyparissus,	Lavender
Spartium	scoparium, Broom	
Vaccinium	macrocarpon, Cranberry	
Vinca	minor aurea var.,	Periwinkle
	major argenteo "	"
Yucca	filamentosa, Adam's needle	
"	angustifolia, Bear's grass	
"	glauca,	"
"	gloriosa,	"

Shrubs with ornamental berries and seed pods that hang on through the winter, that are very beautiful things to have in the shrubbery.

Celastrus	scandens, Staff tree	
Cephalotaxus	Fortunii,	Yew tree
"	" masc,	" [bower

Clematis	grandiflora azurea, Virgin's
"	" var., Virgin's bower
"	Virginiana, "
"	vitalba, Traveler's joy
Crataegus	pyracantha, Fiery thorn
"	oxyacantha, Hawthorn
"	" punicea, "
"	" rubra pleno, "
Eunonymous	atropurpureus, Burning bush
Gaultheria	procumbens, Tea berry
Ilex	glabra,(prinos glabra), Ink berry
"	opaca, Holly
"	verticillata,(P.verticillata),Black [alder
Hedera	Helix, Ivy
Ligustrum	sempervirens, Privet
Mitchella	repens, Partridge berry
Rhamnus	lanceolatus, Buckthorn
Symphoriocarpus	racemosus, Snow berry
"	vulgaris, Indian currant

PERSONAL ACKNOWLEDGMENTS.—The Editor's thanks are due to the *Practical Farmer*, *American Farmer*, and other journals, for kind personal remarks in regard to the Editor of this magazine, in connection with the Reading meeting. When these compliments are paid to the magazine, we regard them as much for our readers and correspondents as for the editor, and transfer them to our pages; but in the present case all the editor can do is to assure his friends that he will at least, try to deserve the kind opinions they hold of him.

THE CENTENNIAL COMMITTEE ON HORTICULTURE.—We understand that the reason why horticulture seemed to have been overlooked in the arrangements of the local committees, was because it was understood that the Pennsylvania Horticultural Society should take full charge of this department of the national exhibition. Under date of February 7th, a note from Mr. J. E. Mitchell, Chairman appointed by the Horticultural Society, we are informed that a financial sub-committee has at length been appointed. The Horticultural Society is moving energetically in the matter, but it seems to us, sadly needs the encouragement of our local horticulturists. At the meetings for the arrangements, barely a dozen attend. It is gratifying to feel as we do, that this dozen are quite enough to see the project through to success. It will be a grand success, whether any more lend a hand actively or not. But it seems a shame that the horticultural branch of this affair, which we feel will be one of which all the Union will be proud, shall have to be sustained by such a handful of devoted men.

P. H. FOSTER, BABYLON, N. Y.—The publisher returns thanks to Mr. P. H. Foster for a kind notice of the *Monthly* in his nursery catalogue, which catalogue, besides the usual popular kind of fruits, has the names and descriptions of some rare and valuable kinds.

DENDROBIUM, PULCHELLUM PURPUREUM.—This should have been the title of Mr. Taplin's last paper on Orchidæs. The incorrect orthography was the printer's fault.

POSTAL LAWS.—A lady writing from *Llewellyn Park, Orange, New Jersey*, says: "I read with interest what you said in January number about postal matters, and agree with you in thinking the laws rather imperfect as applied to the transfer of miscellaneous articles. They are subject to too much risk. For instance, I sent off yesterday, some pressed specimens of the Climbing Fern that I procured in Hartford this winter. The package was carefully examined and approved by the postmaster here, and that would seem to be enough; but at the other end it is to go through the same thing, and some ruthless hand will perhaps, mash all the beauty and delicacy of that most beautiful and delicate of plants. Should not the power of endorsing such packages be granted to the offices from which they are sent, so as to secure them from farther examination?"

A MYSTERIOUS LETTER.—Sometimes friends not knowing the address of the publisher, send their letters to the editor, and though on the publisher's account, in which the editor has no manner of interest, he is always glad to accommodate. Thus the following fell into his hands. The letter was unpaid, and cost the editor ten cents. Feeling assured that one who "never takes unpaid letters," would not send any, we suppose the whole thing a hoax, and wait further information before giving the letter to the publisher: "Sir—Please send me specimens free, as I wish to get or subscribe for a good paper. Address, Wm. H. Cooper, Dorchester Station P. O., Ontario, Canada. N.B.—Please prepay the whole postages, as I never take unpaid papers out of the P. O."

THE COLD WEATHER.—Thursday, January 30th, will long be remembered as one of the coldest days the United States ever knew. At the Germantown Nurseries, the lowest was 14° below zero, two lower than in the memory of *its* oldest inhabitant. But letters from numerous correspondents speak of various grades between this and 45°. On the Hudson it ranged about 30° below. In our vicinity we do not see that any thing is hurt. What a lesson for those who are studying the effects of cold on plant life! So much hurt last year, and the glass hardly to zero; and this year so little, and yet the glass so low!

TREE PLANTING IN IOWA.—A Clinton correspondent says: "We have had a terrible winter here and north us. I fear for stock, unless thoroughly matured, and even then it is hard to conceive of any fruit trees escaping with the mercury at 45°, as in Northern Wisconsin and Minnesota. I really fear that after the destruction of those great pine forests, that entire country will be inhabitable. Down here I think we are planting out about as fast as they are destroying, so we will probably be in shape to meet the storm, which sooner or later must come."

FLOWERING OF CALLA ETHIOPICA.—"*Lily*," *Cincinnati, Ohio*, says: "To me one of the charms of the *Gardener's Monthly*, is the many interesting lessons we receive in regard to the habits of our floral friends. They seem to be always furnishing us fresh lessons of wonder at the amazing beauty and order which all nature seems anxious to teach those who are willing to learn. I noticed a fact in my Calla lilies which seems new to me. I have six very strong ones, and ten weaker ones. The six large ones all flowered about the same day together, between Christmas and New Years; but the smaller ones did not flower at all, and I thought this would be all the blooms I should have, but now, (Feb. 10th) all the small ones are showing flower, and strange to say, the old ones are also going to bloom again, and I do not believe there will be a day's difference between the second flowering of the old plants and the first flowering of the younger ones. How is this? There appears just about two months between the two sets of flowers."

[One who has the gift of observing these things as "Lily" does, will not fail to enjoy floriculture. There are thousands of just such observations yet to be made which nobody has seen yet. In the calla, a certain amount of growth and peculiar form of vigor has to be obtained before flowers are formed. In the strong callas, this point had been reached when the plants went to rest last summer. With the new growth, there was nothing to do but to unfold the already pre-formed bud, which was nestling down in the concealed leaves near the bulb. The second flowers are from the *offshoots*, which are about the same age as the younger plants, and ought therefore to come in about the same time as they do.]

CALLA "LILY."—*N. L., Oak Park, Ills.* writes: "I wish to ask one question, but shall not feel hurt if you do not pay any attention to it in the *Monthly*—it is this. Is the Calla a lily? I cannot think that it is, still I see it called Egyptian Lily, Lily of the Nile, etc., in catalogues of some that should know."

[Our correspondent's remarks illustrate the folly of those who would have no latin names for plants, but all English ones; for in time one half the people would not know what the other half talk about. As he remarks, the Calla is not a lily, but of the arum, or as the botanists would say, the aroid family, and very distinct from the Liliaceous plants. But travelers in Egypt have accustomed themselves to call the Calla, the Lily of the Nile, and hence the absurd term here of Calla lily. In different parts of the world other things are termed lilies. In England the *Convolvulus arvensis* is very commonly known as the lily.]

STRELILZIA REGINA.—*E. E. B., Dover, New Jersey*, writes: "Please inform me in the *Monthly* of the botanical family of the Strelitzia, and oblige."

[It belongs to the Plantain or Banana family. Notwithstanding the very great apparent difference between the flowers of this and the *musa*, or Banana, the organic structure is very close. The leaves will suggest an external resemblance more than the flowers do.]

TREATING HYACINTHS AFTER FLOWERING.—A lady amateur, *Cazenovia, N. Y.*, says: "Will you inform a lady reader of the *Gardener's Monthly*, through its 'inquirer's column,' what is the proper treatment for Hyacinths and Polyanthus narcissus in pots, after flowering? I have

very fine ones this year, and would like to know whether they will bloom again, and how to treat the offsets."

[Hyacinths, as we get them from Holland, have not been allowed to flower, and hence have much concentrated strength in them, which they never regain after once flowering. But they will produce some flowers another year, if well cared for. As soon as the flower fades cut away the stem, and give the plants all the benefit of light possible, and keep the soil rich by a light top dressing of manure, and as soon as possible after the ground opens and frost is certainly gone, plant them in the open ground. The offsets will, however, make the best bulbs. Plant these in spring in very rich ground, and in the fall replant again in rich earth, picking out the flower buds which it may make the succeeding year. The season following they will approach the foreign bulb in excellence. We have not so far been able to equal the Hollanders in raising bulbs, but Mr. Such was experimenting some years ago with some hope of success.]

PROPAGATING AZALEAS, GLOXINIAS, &C.—*J. J. B. H., Indianapolis, Ind.*, writes: "How do you propagate Azaleas? Can't you write up Gloxinia and Achimenes culture, also Gesneria? I often wonder when you find time to edit a paper and attend to a nursery too. Do you work harder than other people, or do you neglect your nursery?"

[Cuttings of the half ripened wood, in a pot or pan of sandy soil, sunk to the rim in a bed of sand or earth which has a temperature of about 60°, and under partial shade, will root in a few weeks. Gloxinia, Achimenas, and the tuberous rooted Gesnerias, are beautiful things, and will never bring shame on the pen which "writes them up." To raise the plants of the bulbous kinds, leaves are planted under much the same conditions as given for Azalea. In the course of time, a little bulb will form at the base of the leaf stalk, and next year a plant will spring up from the little bulb. The tuberous rooted kinds increase very rapidly by their under ground scaly roots or tubers. They like a turfy soil, through which the water will rapidly drain away, and must have a *moist atmosphere*, with a temperature of 60 or 70° to do well in. Towards fall, as the leaves wither after flowering, the roots are kept rather dry till the new growth shows signs of starting when they are again put into new soil, for a fresh season's growth.

In regard to time, "come and see" if the nursery is neglected The editor says very little about his nursery in the pages of the *Gardener's Monthly*, because the magazine does not belong to him, but to Mr. C. H. Marot, and he feels he has no more right to use its columns to his own personal interest than he has to allow any other nurseryman to use it for his. He takes his place along with the rest of his nursery brethren in the regular advertising pages. He gives one afternoon a week to the *Gardener's Monthly*, and for the rest of the week idles away his time at home waiting for customers, perhaps sitting on fern clad rocks, gazing in thoughtful reverie on the waters of the Wingohocking babbling at his feet, or in some other way equally pleasant, until some one catches his eye, who may possibly need a bill of goods, or have some new thing in facts or philosophy to report to him.

PORTABLE PROPAGATING PLANT CASES.—A lady amateur asks: "I wish to know whether you know of any plant cases manufactured in this country, for forcing seeds and cuttings in the house. They are made in England, and are mentioned in 'Window Gardening,' by Williams."

[We do not know at the present time any one who makes these, as the descriptions so often published, are intended to aid any handy carpenter in putting them together. In the early numbers of the *Gardener's Monthly*, Mr. James Daniels advertised them. For some years past he has been in Norristown, Pa., we think still in the florist business, and would no doubt make them if ordered.]

TOMATO TROUBLES. — "Subscriber since 1860," *New York*, asks: "The last two years the crop of tomatoes has been remarkably small in this section of our country. Nothing in our market used to be as abundant as tomatoes—of late years they come along sparingly. Worse than that, they were but half ripe, and even those that were fully ripe were watery and had no flavor. Has the same been experienced in other parts of this country? I shall be sorry to learn that tomatoes degenerate, following the example of U. S. Senators. Another question. I have eaten a good many varieties of the tomato, but never found one with the slightest difference of flavor. Are there any differently or stronger flavored than the rest?"

[Our New York friend starts a subject of

which we had no knowledge, for we had not known before that the tomatoes were so bad in New York market last year. We have not heard that there was any degeneration particularly last year, though we do know that the tomato is one of the worst of all vegetables to keep pure. Only by the most careful selection of seed can any one variety be kept long from degeneration.

As to *how* one variety excels another is also a hard question. There is a great difference in size of some varieties, and also in the smoothness of their outline. Also are some more solid than another; but yet as we have said all these will vary more or less in seed of the same kind.]

CULTIVATING ORCHARDS.—When we have recommended *growing* orchards in grass—not *neglecting* orchards in grass—we have been met once in a while with the objection "possibly it might do in the Middle States, but it will never do in Western New York." As the letter from which the enclosed is an extract, is "private," we withhold the writer's name and address, but we may say in connection with the reflections given above that it is from Western New York:

"*If I would plant another orchard again I would neither prune or cultivate so much.* I believe that if your teachings in regard to the management of orchards would be more followed, fruit growing would be more profitable to many than it is now. Having an orchard in grass and neglect seem inseparable with many. From this notion I differ, for since I have my orchard in grass I take more care of it then I could do before, for in open winter weather it is almost forbidden to walk in cultivated clay soil, while in grass orchard, pruning, destroying insect nests, &c., can be done with the greatest ease and pleasure. This letter is not intended for publication. I conclude with the remark that I wish you would be able for many years to come to conduct the *Gardener's Monthly*, for I have no paper which gives me so much instruction."

NAILING VINES TO STAKES.—*Mr. J. H. Simpson, of Vincennes, Knox County, Ind.*, says: "In your January number you mention that some one in Ohio expected to get a patent for nailing grape vines to posts and trellises. This mode of fastening vines was explained to us *free of charge* at our State Horticultural meeting in January, by a Mr. Tillinghast, of Indianapolis, who adopted this method two or three years ago."

RARE PLANTS.—*B. A. K., Concord, N. H*, asks: "In your February issue for New and Rare Plants, *Golden Chinese Juniper* and Perpetual Flowering Tree Carnation—where can they be obtained? Can they be grown in this climate with any degree of success?"

[The tree carnation La Belle, and the Golden Chinese Juniper were described in the English works from which we quoted. We do not know whether or not they are yet in this country If not it is likely they soon will be. Enterprising American florists are not long behind their European brethren. R. Buist, Philadelphia, often has new plants as soon as they are announced in Europe.]

RAISING ALTHEAS.—*C. P., Marietta, Ga.*: "Will you please tell me how to propagate the Althea. I raised some from seed a few years ago; but they flowered last season and are not double like their originals. I suppose there must be some other way to raise them."

[They grow by cuttings, put in in spring, or by budding on other stocks in June.]

BOOKS, CATALOGUES, ETC.

PENNSYLVANIA FRUIT GROWERS' SOCIETY.—Annual report for the year 1872. Philadelphia meeting.

This is beautifully illustrated with lithographs of the Reading Pear,—and the Fallawater, Krauser and Smith's Cider Apples. It is the intention of the Society to continue in each volume sketches and histories of all the leading Pennsylvania fruits.

Former volumes have had expensive illustra-

tions of Insects, beneficial and injurious to the fruit grower. The present has plates of some twenty four of the leading birds of Pennsylvania, with descriptions from the able pen and pencil of Mr. Jacob Stauffer. Besides these beautiful illustrations are the excellent reports of the several committees, and such of the essays as were given in in writing. The Secretary's notes of the discussions are very meager, and would have been better entirely omitted. He does not seem to have caught well the spirit of the speaker; for instance, Mr. Carville (Carbell he is called in the report) made some highly interesting remarks on fruit culture,—but he is credited only with stating that when he "dug and manured round an old apple tree, a vast change was effected," a cause and an effect which has followed one another for so many hundred years, that if this was all Mr. Carville had to say, it would not have been worth his while to have spoken at all, or worth the Secretary's while to have reported what he did say. Mr. Eaton asks to be excused,—but from what he is to be excused, the reporter does not say. Harrison is reported as wishing to "grow trees by high fertilization, so vigorous that they may be vigorous;" and also is credited with the wonderful discovery that when "people are healthy physicians are not needed." Meehan is made to say that "old beets and such like offal" is a good mulch for the gooseberry; and that evergreens make "the ground" in which they grew warmer, which is a very absurd thing for Meehan to say, and the Secretary would have been justified in leaving such nonsense entirely out of his report. Members are continually made to say they agree or disagree with some other speaker, but what it is they are to agree or disagree with, is not visible through the report.

In spite of this defect the Proceedings are of great value. Paschal Morris, Editor of *Practical Farmer*, says of one of the meetings, that it was worth $10 to be present,—but surely a volume like this is worth alone the membership fee.

NEW AGRICULTURAL PAPERS.—On our exchange table we find two new agricultural papers. The *Shenandoah Valley Farmer*, from Martinsburg, Va., and the *Farmers' Advocate*, of Jackson, Tenn., both promising in appearance and contents. The last name is already in use by a Canadian paper, and it is to be regretted that original titles cannot be found.

The *California Horticulturist*. The second volume of this excellent publication has just closed, and we are sorry to learn that it has not received the patronage which its merits deserved. It has passed into the hands of Carmany & Co., publishers of *Overland Monthly*, and they purpose to make it so valuable that no Western horticulturist can afford to do without it. We wish them every success.

The *Eclectic Ruralist* is the title of a small periodical to be published at a cheap rate by Mr. Geo. T. Fish, of Rochester, New York. The object is to aid in the advancement of horticultural knowledge, and at the same time keep in view the interests of the nursery trade.

PURDY'S FRUIT INSTRUCTOR.—The value of Purdy's *Small Fruit Instructor*, which has been advertised in our columns, heretofore, may be judged from the following subjects which it contains. "Advice to new beginners;" "What we would do with ten acres;" "Profits of small fruits;" "Secrets in making small fruits profitable;" "Marketing fruits;" "Gathering fruit;" "Wagons for drawing fruit;" "Shipping fruit that perishes quickly;" "Size of shipping crates;" "Plan for laying out and planting a twenty acre plot with fruit and vegetables;" "Plan for kitchen garden for fruit and vegetables;" "Stands for gathering the fruit;" "Protection from winds;" "Raising new sorts;" "Manures;" "Liquid manures." Strawberries—Their profit—Time to set—Preparation of the soil—To grow large fruit—To produce fruit late in the season—Mulching material—Winter protection—Taking up plants for setting—Large and small plants—Growing plants for resetting—Directions for setting—Care of plants after setting—Crooked and straight rows—Different modes of culture and varieties. The same of raspberries, blackberries, currants, gooseberries and grapes. "Fig culture;" "Plan for a drying house;" Propagating plants from root cuttings, &c., &c. The work is finely illustrated with plain, easily understood drawings, and is of such a practical character that it should be in the hands of every man who owns even a rod of ground. Price only 25 cents.

Address, A. M. PURDY,
Palmyra, N. Y.

THE LONDON GARDEN.—About a year ago, Mr. W. Robinson, well known to and esteemed by so many of our readers through his books on

gardening, commenced the publication of a weekly paper in London, called *The Garden*. Though ordered several times through our regular importing sources, it only recently came to hand. Mr. R. had the advantage of an early love for gardening, and a continuous practical experience as a gardener. This, with his cultivated literary and scientific attainments, would lead the public to expect a superior publication in the *Garden*, nor will they be disappointed. England already has at least three, if not more garden papers, that seem as near perfection as anything in this line can be. The *Gardener's Chronicle*, the *Gardener's Magazine*, and the *Journal of Horticulture*, seemed to cover all the ground. But a perusal of the *Garden* shows that Mr. Robinson has found a large unoccupied tract, and he is cultivating it so well that in speaking of the superior English papers on gardening, the four must go together.

NEW AND RARE FRUITS.

APPLE—ILLINOIS PIPPIN.—The *Horticulturist* for February figures and describes an apple under this name, which promises to be a good thing. It is rather large, flattened, yellow, striped with carmine, with a white, sub-acid flesh. In season in January.

Mr. Hammond of Warsaw, says it is likely to be an honor to the State. It is superior in quality to Ben Davis and Willow Twig, and has most of their good qualities. It flowers two or three days before Rawles' Janet, and is a native of Warsaw, Illinois, from seed sown by a Mrs. Chandler in 1838.

THE WEST BROOK, OR "SPECKLED" APPLE.—The following letter was received after the writer of this paragraph returned from Reading. Mr. Downing supposed it was identical with the Fall Orange of Western New York. In order to test the matter, the writer of this has a tree of each in his specimen orchard, and the growth of the two is so widely different, that they cannot possibly be identical, however near they may approach in the appearance of the fruit:

"Apropos to the Reading Convention, which I greatly regret that I cannot attend, I beg to send you a few last specimens of my '*Speckled, or West Brook Apple*'—an apple unequalled in productiveness, hardiness of tree, and general excellence as a dessert market apple. I have grown it for thirty years, often to the extent of five hundred bushels (from about 23 trees) in a single year—and I have never met its equal. It ranges from September to January in keeping, as you see I have often before kept them until January and February.

"I regret that it is not known in Eastern Pennsylvania, and shall be glad to diffuse it to any wishing grafts; it would more than replace the often failing Bellflower. Nor is it known in Eastern New York or New England. Mr. Downing made a great mistake in supposing it identical with some New England variety—I forget the name. It is abundant only where I have myself distributed it, in Western New York.

Very Truly and Respectfully,

LORIN BLODGET."

THE PEN APPLE.—Our readers may remember that some years ago there was quite a sensation raised by the announcement that an apple far superior to Baldwin in general characteristics, had been raised in Lancaster County, Pa. Not from seed, but by a natural branching off or developement, which is technically known in the craft as "sporting." It was also said that this apple was known as the *Pen Apple*.

Mr. Engle took the matter in hand last winter, and went personally to the place of origin of the Pen, and obtained specimens which he brought to the meeting at Reading, and it turns out that the "Pen" is not at all like Baldwin but is a very different and inferior fruit. Those therefore who have received these apples under the name of Pen, have not the Pen, in all probability, but have a very superior article of Baldwin.

We still think that there is enough difference between the Lancaster County Baldwin and the original to warrant a separate distinction, and would suggest that as the name of Pen must be dropped, it be known as the Lancaster Baldwin.

NEW AND RARE PLANTS.

CAMPANULA TURBINATA.—For upwards of two months this gem has been producing its charming flowers in the greatest profusion in my London garden, and although now on the wane, it is still very handsome, and the delight of all beholders. It forms a dense compact tuft, never exceeding 8 or 9 inches in height, blooms included. The flowers are large, erect, bell-shaped, and rich dark purple. There is also a white form, which resembles that described in every respect saving color. I would ask why these are not more grown, for they are perfect jewels in the flower border. They come from the mountain regions of Transylvania.—*Journal of Horticulture.*

DELPHINIUM NUDICAULE.—This species is a new introduction from California, and to all my readers who have not yet purchased the plant my advice is, do so at once. It is dwarf in habit, seldom exceeding 18 inches in height; the leaves are somewhat small, palmately lobed, and of a dark green. The flowers are large and freely produced both in terminal and axillary spikes; the sepals and spurs are bright orange, and the petals bright red. This plant, I think, cannot fail to please every one when it becomes established, its dwarf habit and brilliant color being great recommendations; but I cannot endorse the views I have heard respecting its becoming a good bedding plant.—*Journal of Horticulture.*

HORTICULTURAL NOTICES.

THE NORTH AMERICAN BEE-KEEPERS' SOCIETY.

Bee-keeping has grown to be a great interest during the past few years. Bee-keepers have their separate periodicals, and meet in Conventions and discuss bee matters as enthusiastically and intelligently as any other class of citizens do their special fancies. We have before us the report of the Bee-Keepers meeting held at Indianapolis, last December, and find it replete with interesting matter. Bee-keeping would seem to be a branch of agriculture than of horticulture; and we find the speakers at this meeting class it with stock raising and milk dairying. Yet flower raising in connection with bee-keeping, brings home the subject so nearly to our own special department, that we make no apology for referring to the interesting proceedings of this convention here.

One of the questions discussed was: "Will right management of bees develop peacefulness of disposition, as we know wrong management develops the opposite."

Dr. Bohrer, of Louisiana, thought not.

Dr. Lucas, of Peoria, thought they could. They could be taught to know their keeper from other people.

Mrs. Tupper thought it could only be done by "natural selection" in breeding from good tempered bees. But they could be taught to know their owner.

Many joined in this discussion. It seemed to be the impression that bees from home or overfed, did not care to sting, and thus the "tamed" bees often exhibited at fairs were accounted for.

In regard to bee feed it was decided that sugar did not pay, nor make good honey if it would.

About wintering bees there was much said. It appeared however that the advantage depended on location.

D. L. Adair, of Ky., said of course the management had to be adapted to the climate, but housing could be advantageously adopted at the South, yet bees wintered so well in the open air, that very few would take the trouble to house them. They could not be made to understand that it was necessary. Mr. Moon had said that if bees could fly but once in three weeks they would not suffer from disease. In the South, even as far north as Kentucky, there was seldom a time but what bees could fly out that often, yet in 1868, the bee disease was very fatal there, in some parts destroying all the bees over large districts.

I. Z. Smith, of Ohio, said he built a wintering house 26x12 feet and 10 high, with double walls filled in. Had an eight inch square hole at top and bottoms for ventilations. Has in it fifty-two colonies.

How should extracted honey be managed to prevent souring?

Mrs. Tupper never has had any extracted honey to sour. Extract when nearly ready to cap. Lets it stand twenty-four hours, then takes off and puts it up. Dealers reject boiled honey as not good.

How to bring back run away swarms seemed to show that anything which confused the colony succeeded.

W. R. King, Ky., had stopped a valuable swarm after they had gone three-fourths of a mile, by throwing dirt among them. Had seen them brought down several times, by shooting among them with a shot gun.

We have frequently "brought down" geese, ducks, and before we believed in their value to the tiller of the soil, the crow, and other birds in this way; but we should be afraid the bees "brought down" in this way would be useless for honey making purposes.

"What is honey?"

D. L. Adair, of Ky. There is no distinct substance that can be called honey. Bees gather anything that has enough sugar in it to give it a decided sweet taste. Three kinds of sugar are recognized, fruit sugar, grape sugar, and cane sugar. They are all vegetable secretions and differ but slightly in their constituent elements. They only vary in the amount of hydrogen and oxygen (which are the elements of water) and are convertible into each other. As ordinarily gathered from flowers, honey is a mixture of sugar and other secretions of plants, and consequently differs widely in its composition, depending on the source from which it is obtained. The peculiar scent and flavor of the honey is imparted to it in the hive by the absorption of the musky particles given off by evaporation from the bodies of the bees, a scent that all bee keepers will recognize who have opened a hive or walked among them of a calm evening.

As to honey plants, Catnip was recommended; also *Polanisia purpurea*, and Dr. T. B. Hamlin, presented a dried specimen of *Vesicaria Lescurii*, a plant peculiar to the vicinity of Nashville, one of the best early honey plants he knew.

I. Z. Smith, Ohio. All farmers could keep bees with profit. He kept his bees as his hired men, to work all the time, and he made it a point to furnish work for them. What was lacking in natural forage he supplied by planting honey crops. Alsack clover could be made very valuable by cutting the first crop at different times. It was valuable also as a forage crop. Made good hay.

In regard to the Profits of Bee-Keeping, said Mrs. Tupper, of Iowa, I met a farmer and his wife coming out of Des Moines. He had received $12 for 4 loads of corn while she had $25, the proceeds of three hives of bees. Women could make it successful whether men could or not. It will pay in suburban homes, and even on the house tops of cities.

And J. W. Hosmer, of Minn., said it was as profitable as to raise milk and butter, and he considered it an argument against keeping cows to say that every body did not make it profitable, as it was against bees to say every body could not manage them successfully. Not one family in a thousand in Chicago had honey, and not one in a hundred even see it once a year.

Mr. Quinby's question was, "The cause of the mortality among bees last winter, and can it be remedied in the future."

Mr. Zimmerman. Too many old bees and long cold winters were causes of the dysentery. Let some of his bees fly in a warm room last winter and saved them, while others wintered with them that did not fly out died.

The next topic discussed was, "Is the Italian superior to the little black bee?"

The discussion was a lengthy one, and was participated in by Dr. Lucas, Dr. Bohrer, Mrs. Tupper, J. B. Smith, of Ohio; Hoagland, of Penna.; Dunlap, of Ills.; H. A King, of N. Y.; Disler, Ia.; Southworth, Ills.; J. S Hill, Ohio; Zimmerman, Ohio; Shipley, Ohio; Allen, Mo.; Dr. Hamlin, Tenn., President Clark, N. C. Mitchell and other.

None of the speakers expressed a negative opinion, though some contended that they had been puffed too much and had virtues attributed to them that they did not possess. The speakers did not all praise them for gentleness, and many agreed that in natural swarming they were more likely to become intelligent in hiving than the black bee. They were also accused of having some other faults.

We have referred to but a very few matters discussed in this convention, but they are enough to show how wide is the field, and how interesting is the subject of bee culture.

MISSOURI STATE HORT. SOCIETY.

The Missouri State Horticultural Society met at Jefferson City, January 7th, 8th, and 9th. The reports of a few of the committees appointed at the preceding annual meeting were listened to with decided interest. The guess papers were present as usual; but only those that gave accurate experiment and experience were accorded attention. The discussion concerning the grape preceded all others, and was led by George Hussman. He was closely and persistently questioned by the members present, and very many facts elicited of great value to the vinyardist.

Result.—That the Concord has proved itself all in all the most reliable and useful grape for Missouri. But it has been overplanted, and the market is now so glutted that in this season Concord's being only two to four cents a pound in St. Louis. More varieties should be planted, although the Concord should still head the list. Martha is recommended as doing finely. Ives useless. Goethe as standing the test, and ranking next to Concord. Underhill's seedlings, Croton and Senasqua as doing well so far.

The discussion on Apples was led by one of our largest growers, O. H. Leah. For about one hour he answered questions concerning different varieties, and their adaptiveness to the soil and climate of the State.

Result.—The Rawles' Janet is the standard of quality and fecundity. But it has also glutted the market, and does not pay for picking. A score or more of varieties were named that are especially good. Among these stand prominent, Ben Davis, White Bellefleur, Wine Sap, &c. A superb show of apples was spread on the tables of the Society.

The discussion on Pears was mainly led by Rev. E. P. Powell.

Results.—Plant in well drained heavy soil. Cultivate in the sod; that is, grow them in grass, but well worked about and thoroughly mulched. Plant trees limbed low; thin out weak shoots in summer, and cut back the remaining wood in autumn, till the tree gets too large to manage. Every way grow the tree slowly, and get ripened wood; and protect the roots from the effect of extreme changes of temperature. In this way Mr. Powell had preserved two orchards, one in New York, the other in Michigan, from any traces of blight.

Judge Krekel discussed Cherries, as did the Chairman, Henry T. Mudd.

Result.—Deal with the finest cherries very much as with the pear. Slow growth and careful mulching will preserve the trees in a healthy condition.

It can hardly be said that any special person led in the discussion of the wine. The committee that retired with the social fluid had a prolonged session, and reported as men well acquainted with the subject, Most of the premiums went to Dr. Claggett.

Tuesday and Thursday evenings were occupied with addresses by Rev. E. P. Powell and Prof. C. V. Riley. The first on Horticulture in Cities; the latter on Entomology.

The session was of much practical value to the State, as it has tended to correct a tendency to plant too few varieties, thus glutting the market with a pet grape or apple, and reducing the price below the cost of gathering.

The Society will hold its next session at Hannibal, in January, 1874.

SOMETHING LIKE PRIZES.

At the Annual Rose Show of the Mass. Horticultural Society, at Boston, June 17th, special prizes for Hybrid Perpetual Roses, offered by H. H. Hunnewell, Esq. Open to all.

For the best six new varieties, never before exhibited, $40.00.

For the best six named varieties, $20.00,

For the next best, $10.00.

For the best twelve of any one variety, $20.00.

For the next best, $10 00.

All roses competing for these prizes, to be exhibited in boxes the same size as those competing for the Society's prizes; the size of the boxes for the six new varieties and the named varieties, one foot six inches long, one foot six inches broad, six inches high at the back, and four inches high at the front.

Special Prizes for Roses, offered by C. S. Sargent, Esq. Open to all.

For the best twenty-four distinct named varieties, three flowers of each, $60 00.

For the next best, $40.00.

All roses to compete for this prize to be exhibited in wooden boxes to be four feet long, one foot six inches broad, six and one half inches high at the back, and four and one half inches high at the front. The roses to be placed on a neatly arranged carpet of moss. Regard will be had to the manner in which the roses are exhibited.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

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HINTS FOR APRIL.

FLOWER GARDEN AND PLEASURE GROUND.

Here is a picture before us, which the artist says is "the old, old story." A trustful heart has been drinking in the music of a sweet love song, and both the singer and his one beloved auditor both seem happy. It is indeed the old, old story, but to thousands of souls it comes as fresh and joyous as if their young morning of life was the beginning of a newly created world. And to us who love trees and flowers, gardens and garden art, April brings the same old story of faith and hope—of work to do, and trust to enjoy the labors of our hands. Digging and raking, seed sowing and tree planting, planning and designing—the same old story it is every year; but yet not the same, for flower garden history, like the general world's history, never repeats itself. Our trees have grown larger, the shrubs are bushier, the vines have lovingly covered every deformity, even our flower beds will be somewhat changed, and the very plants we grow in them not as the plants were last year.

The flower gardens of the old world are renowned; but yet with some judgment we might excel them, because in our hot climate we can take advantage of so many tropical things for out door decoration which they cannot grow, besides most of what they rely on for their best effects. Of these valued for their colored leaves are the increasingly numerous varieties of Coleus, Irisene and Achyranthus, Alternantheras, Dracœnas, and the like. There has been also much attention given to the silvery leaved plants, which are almost essential in forming a proper contrast with the more brilliant hues. Centaurea ragusina, or as it is sometimes called, C. candidissima, was the first step in this direction, unless indeed the old Cineraria maritima can be said to have been in use for this purpose. Now we have C. Clementei and C. plumosa, Gnaphalium tomentosum, and some others, which give us a variety in form and stature, as well as keeping up for us the silvery hue.

While speaking of silvery hued leaves, one may refer to the beautiful silvery plumes of the Pampas Grass, which towards the fall of the year give a magnificent appearance to a lawn, especially if the plants are grown in very rich soil. The Erianthus Ravennœ is also a very striking grass of this character.

Of flowering plants which thrive well in our climate, we have a good selection. The Geraniums are amongst the best, although, botanically they are not distinct from Pelargoniums; yet it serves a good purpose to retain the name as a popular designation of an useful class in flower gardening. There are now double varieties; but for flower gardening purposes, double flowers are inferior. These varieties do not flower as freely as the single ones. This has proved to be the case with the Petunia, the Pansy, and other things, and we suppose the rule will hold good here. The Rose Geraniums flower somewhat steady throughout the year, and are indispensable for their delightful fragrance and elegant foliage. The Verbena used to be the main reliance for bedding—but the great ravages of the verbena rust, has made it somewhat unreliable; and, although it is indispensable yet, it does not take the front rank as formerly.

In the class of scented flowers, the Heliotrope, the Mignonette, and the Sweet Alyssum, command a prominent place. The last is liable to suffer much from the cabbage-fly. A syringing with water, in which a few drops of coal oil has been spread, soon settles his business. There is a variegated Sweet Alyssum which is very pretty.

Lantanas are very desirable; but to have the best results from them, they should be planted in *poor* soil. A very pretty species, trailing like a Verbena, but not much known, is *L. Sellowii*. The varieties of Lobelia make fair bedding plants if not put in too dry a soil, or too warm a situation.

The old *double white* Feverfew is one of the most desirable of bedding plants. White flowers can be cut from it all summer, and yet have plenty left to bloom. The Petunia, though of no account for cutting, keeps up a brilliant show the whole season. They do also very well in hot places where little else will do. The singles give the most flowers. For cutting purposes, the Monthly or Tree Carnations are lovely things, though they are ugly growing plants, and do not make much show on the grounds. The blue Ageratum is not very showy, but blooms so profusely, that every one likes to have it. The old Nierembergia gracilis is another not very showy plant, but flowers so well, and is so satisfied with indifferent treatment, that one cannot let it go. The Gazania is curious, and makes a brilliant show of orange and black on a fine day, but is not well adapted to a hot place. The little *Cuphea platycentra* has rather too much green for a show plant; but if the soil is not too rich, gives fair satisfaction.

For late summer and fall blooming, we have Gladiolus, (excellent for cutting for baskets and plates of flowers), Tuberoses, (ditto), Chrysanthemums, Dahlias, and particularly the Scarlet Sage, without which no garden is complete. These are very well known and popular bedding plants.

Besides these, there are some not so well known but which will, perhaps, become as popular for some purposes as the others The Ivy Geraniums are being much improved, and are just the things for vases and growing over mounds or elevated places. All the forms of Sedums are also excellent for vases and dry places—as are also several varieties of hardy Cactuses, half hardy Echeverias, and other succulents.

Aloes of many kinds suit the centre of these vases and flower beds remarkably well. The variegated Geraniums, and variegated leaved plants generally, do only where protected from hot suns. The common Perilla, with dark colored leaves, however, does best in the full sun. The shrubby New Zealand Veronicas flower most of the season, and are suited to many localities. But perhaps if it be put in very rich soil it might do better. Even England, which in some respects may be regarded as the home of the Pansy, and where so much use is made of some of the varieties for bedding purposes, it is found necessary to a continuous bloom to put a shovelful of manure under each plant, in order to secure a bloom long into the summer season.

The new hybrid Dianthuses promise to be amongst the most popular of bedding flowers. The Bouvardia leiantha and other Bouvardias are rather ragged growers, and seldom have many flowers on at a time; but one can cut for ever from them, and new flowers rapidly succeed. The *Viola cornuta* does not make much show, but blooms well in our climate all summer.

There is quite an excitement on new Clematises as summer blooming plants. They bring yet, very high prices, and have to be tested more in our climate, though they will probably be a success. In Chrysanthemums, a great advance has been made in the production of an earlier class of bloomers. It has always been against the Chrysanthemums that they have been a little too late for decorative gardening. Lilies of all kinds are also growing in popularity and cheapness, and there are some double rose-colored Feverfews that add much to the beauty of a flower garden.

FRUIT GARDEN.

Grafting can be continued till the buds of the trees are nearly pushed into leaf. Sometimes, from a pressure of other work, some valuable scions have been left on hand too late to work. It may be interesting to know, that if such scions are put into the ground, much the same as if they were cuttings, they will keep good for six weeks or two months, by which time the bark will run freely, when the scions may be treated as buds, and will succeed just as well as buds taken from young summer shoots.

In planting dwarf Pears, it is very important to have them on a spot that has a moist subsoil,

either naturally or made so by subsoiling or mixing some material with the soil that will give out moisture in dry weather. Trees already planted on a dry gravelly subsoil, should have a circle dug out two feet deep, and two or three feet from the tree. This should be filled up with well enriched soil. If the dwarf Pear does not grow freely, it is a sign that something is wrong. It should at once be severely pruned. so as to aid in producing a vigorous growth.

In Europe they find much advantage from often taking up the dwarf Pear and replanting; and the result in this is to disprove the observation of Poor Richard, who "never saw a tree, or an oft removed family, which did so well as those which settled be."

Strawberry beds are very frequently made at this season, and though they will not bear fruit the same year, are much more certain to grow, and will produce a much better crop next year than when left till next August. Though it is a very common recommendation, we do not value a highly manured soil. It should be well trenched or subsoiled; this we consider of great value. In rich soils there is too much danger of having more leaves than fruit.

Buds that were inoculated last fall should not be forgotten; but as soon as vegetation has pushed forth, the buds should be examined, and all other issues from the old stock taken away. It may also be necessary to make a tie, in order to get the young shoot of the bud to go in the way from which you would not hereafter have it depart.

Above all, do not allow the month to pass without posting yourself afresh on the various methods recommended for destroying insects, or preventing their attacks. The advantage of a stitch in time is never more decided than in the great struggle with fruit destroying insects. A mass of information on this point lies scattered through our past volumes, that will well repay a careful reperusal for the purpose alone of refurnishing one's ideas in that line.

After Grape Vines begin to push watch for any which may seem inclined to push out stronger than their fellows, and pinch them back. This indeed should be a rule with all fruit trees. The object is to get all the branches of the same uniform strength and vigor throughout the tree, and this cannot be done where two or three vigorous fellows are allowed to take to themselves all the nutrition which the roots supply.

VEGETABLE GARDEN.

South of Philadelphia, the more tender kinds of garden vegetables may now be sown—beans, corn, cucumbers, squashes, &c.—that it is not prudent to plant in this latitude before the first of May; and tomato, egg plants, etc., may also be set out in those favored places. Cucumbers, squashes, and such vegetables can be got forward as well as tomatoes, egg plants, etc., by being sown in a frame or hot-bed, and potted off into three inch pots. They will be nice plants by the first week in May. Rotten wood suits cucumbers and the squash tribe exceedingly well as a manure. Tomatoes and egg plants that are desired very early, are best potted, soon after they come up, into small pots. They can then be turned out into the open air without any check to their roots. Of course they should be gradually inured to the open air—not suddenly transferred from a warm and moist air to a very dry one.

Bean poles may be planted preparatory to sowing the Lima Bean in May. Where bean poles are scarce, two or three hoop poles, set into the ground one foot from each other, and tied together at the top, make as good a pole, and perhaps better.

Dwarf beans should have very warm and deep soil—sow them only two inches apart. The Valentine is yet the best early, take it all in all.

Peas should be sown every two weeks for a succession—do not make the soil very rich for them.

Lettuce, for a second crop of salad, should be sown about the end of the month. The Drumhead cabbage is usually sown for a summer crop; but the old kinds of Cos lettuce would, no doubt be found very valuable in rich soils.

Early York Cabbage for early use should be set out early this month. It is an excellent plan to make the holes with a dibble first, where the cabbage is to be set; then fill up the holes with manure water, and, after the water has soaked away, set in the plants. It is rather more laborious than the old way—but the cabbage grows so fast afterwards that it pays pretty well.

It is not a good plan to cut all the Asparagus as soon as they appear. A few sprouts should always be left to grow from each, to strengthen the plants.

Celery, with most families, is an important crop, and should be sown about this period. A very rich, moist spot, that will be shaded from

the mid day April sun should be chosen—or a box in a frame, by those who have the conveniences.

Few things mark a well kept garden better than an abundance of all kinds of herbs. Now s the time to make the beds. Sage, Thyme and Lavender grow from slips, which may be set in now, precisely as if an edging of box were to be made of them. They grow very easily. Basil and Sweet Marjoram must be sown in a rich warm border. Salsafy and Scorzonera like a damp, rich soil.

COMMUNICATIONS.

FLORICULTURE IN PHILADELPHIA.

BY X. Y. Z.

It has occasionally occurred to me that something is at fault with the florists of Philadelphia and its vicinity. They have not increased the taste in flowers that the standing of society here might demand. Philadelphia, geographically, is as well suited for the growth of exotics as any other city on the sea-board; her people have more room about their dwellings, are as refined, have more real wealth than any other large city in the United States.

At the present time, the florists here are somewhat behind the same class of men in other cities east and north of us. Not a few around New York, though brought up to some mechanical branch, are proficient in the cultivation of flowers, and are classed among the successful florists. They have studied to grow a few flowers well, and they do it, so much so that many of them are in comparatively easy circumstances, and most of them are approaching that way.

But in taking a view of the florists around the city of Philadelphia, we are debarred from arriving at the same conclusion, for during the last twenty years little or no progress has been made. The same variety of ornamental plants has, with few exceptions, been produced, and the sales in the spring have not embraced a large area of the city.

We might, with propriety, suggest that this economy in production has contributed largely to the lack of progress. They almost invariably heat their greenhouses with the old brick flue, which, in severe winters, is very hurtful to vegetation, for should the plant escape being dried with heat or saturated with moisture at a distance from the fire, every plant in the house is retarded in its growth by the fumes of sulphur escaping from the flue, combined with a humid atmosphere. Any, indeed all of these, are evils that the gardener is unable to successfully guard against where such an imperfect agent is used. To conduct the business of a floriculturist with such inefficient means for the production of heat, is disheartening in the extreme, hence we find, too often, plodding and grumbling in the place of successful enterprise. To help my fellow workers out of this "slough of despond" is the object of this article.

The Philadelphia florist is well aware that those who use water to distribute heat, have their establishments superior to those who use the brick flue; their houses are apparently comfortable, their plants healthy, with no obnoxious gases to impair or destroy the flower. On the other hand, those who still adhere to the old system, use every device but the right one to nurse and economize In support of this assertion, I may remark that I made a few visits among the florists a couple of weeks ago, and found that those who clung to the brick flue had lost as much by the fumes of sulphur and by frost as would have put up a hot water apparatus.

Most of them are well aware that labor consumes one-third of their sales, even under the most successful management; another third goes for material, while the remaining third is all that is left for repairs, rent and profits; this is without doubt the only safe basis on which to calculate. But by continuing the old method of heating, one half is taken for labor, one fourth for material, (they boast of this) and the balance for rent. Profits and repairs are deferred till next year, and they console themselves with the thought that those who use the improved method of heating are just so much poorer than themselves; whereas the latter economize in labor

nearly one-half, an important item in these times of high priced and inefficient service.

It is my sincere desire to put the florists of Philadelphia in the position they ought to occupy, and therefore I place before them my views, the result of many years experience, concerning the heating of greenhouses by the common air flue or distributing heat with hot water.

Before I describe the mode of heating, a few remarks may not be out of place about the erection of a planthouse. Many plans have been adopted, but most of them have very imperfectly answered the purpose they were intended to serve. Some maintain that a house with the roof at an angle of 35° or less is the cheapest and best, and much easier to keep at a moderate temperature than one with a greater angle; others approve of a low narrow house, as then, the plant being so much nearer the glass, grows better; others adopt the large moderately high house as the best. Of the three, the last is decidedly to be preferred, being much easier to manage. A house twelve feet from ground to apex will contain nearly double the quantity of air that a low flat or low narrow house would, and may be considered the medium height a house ought to be; it has the disadvantage of holding more air to warm; but on the other hand there is *more* to *cool* at night. Such a house can be used from November to April without giving air. The low house is easily warmed, (or rather overwarmed) and requires as many feet of pipe to keep it at the same temperature as the high house, with this disadvantage, that it cools much more rapidly. This may be looked upon by some as a mis-statement, but it is nevertheless correct. Nearly everybody will say that a house containing 5000 feet of air can be kept at the same temperature as one containing 7500 feet, and so it may if the area it covers be one-third less; but if both cover the same area, there will be the same cool surface and less air to cool. Hence I conclude that a house ten or twelve feet from ground to apex is easier to be kept at an equal temperature, with the same quantity of fuel, than a low house, and without having to admit cold air for nearly five months.

We will estimate the cost of putting up the heating apparatus in two ways—water and the common brick flue. A house 100 feet by 25 feet by 11 feet would allow the walls to be 4 feet and the roof 45°, making it a span roof. To keep the atmosphere at 65° or 70°—mercury outside at zero—it will require 1000 feet of 4 inch pipe (a fire surface of 4 feet 6 inches is capable of making the water 180° in the boiler, and perhaps a trifle higher, which will keep the house nearer 80° than less) to keep the same temperature, which with the brick flue would require four fires and four flues. The fire places would each be 2 feet by 1 foot, altogether 8 feet of fire surface for the boilers against 4 feet 6 inches; difference in favor of hot water, 3 feet 6 inches.

But it will be said that the larger furnace will consume more fuel in proportion to the greater body of fire, and that if no flue be used from the fire, there will be a greater draught. Let me try the question by figures:—

The cost of 1000 feet of piping, &c., to be from $320 to $350, say the largest sum,	$350.00
Boiler, with necessary fixings in a plain, substantial manner, put in place,	$65.00
Labor, etc., for completing the same,	$245.00
Whole cost,	$660.00
Each furnace and flue, plain and well-built, will cost $50 00; at the end of two years will require rebuilding at half cost, $25.00; and at the end of two years more, renewal, $50 00, $125, which multiplied by 4 gives	$500.00
Difference in favor of brick in six years,	$160.00

But at the end of the six years, the flue begins to be more costly than hot water, for the only renewal required by the latter is occasionally new fire bars or a pipe. If made of cast iron, the waste is very little indeed, and may last fifty years. With the former, the same labor and cost are expended during the second period of six years as during the first. It has, it is true, its lower original cost to recommend it, but its disadvantages are so many and so serious to the gardener, that the wonder is why he has suffered so long without a murmur.

The saving by hot water may be estimated at fully two-thirds in labor alone. Healthy plants, plants in bloom just at the right time, are advantages worth far more than the difference in the prime cost between hot water and air flues.

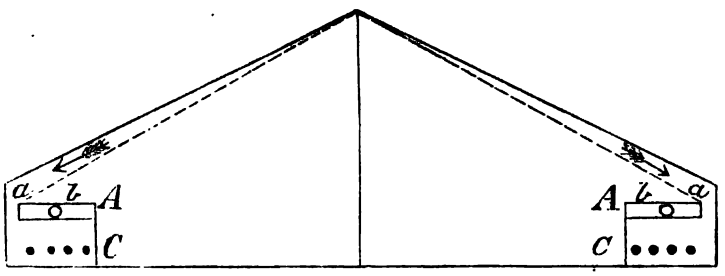
As an appendix to what has been said before, a few general remarks may not be without interest. Three or four days' absence of sun will cause the atmosphere of the greenhouse to become heavy and humid; but the admission of a little fresh air, or even one hour's sun, will re-

store it to its proper state. In the absence of sunlight, carbonic gas increases, though not sufficiently to injure vegetation; but the brick-flue, in very cold weather with a brisk fire, has a red heat near the fire, and all the oxygen that comes in contact with that part is converted into carbonic gas. Any person who uses hot air for his dwelling, will tell you that in very cold weather the air which is shut in from the furnace causes a sensation of partial suffocation, the air being overcharged with carbon and the oxygen proportionately diminished. In large halls, if the warming be not thoroughly attended to, and if the audience be numerous, many become drowsy, this is occasioned by the carbonization of the air before entering the hall. It is the same with greenhouses and plants. The makers of hot-air furnaces would but fulfil their duty to society by producing an *efficient* article, at a price that men of moderate means could afford.

There are some low-pressure steam-boilers in use, but with the small amount of knowledge possessed by domestic help, they may prove very dangerous, and so are not likely to be extensively used. The only improvement I can suggest in the system of heating dwellings is, that the furnace and air chambers be large enough to give the required heat without putting the former to a red heat, as is the case in greenhouses where the air flue is used.

Complaints have frequently been made by those using hot water in greenhouses and steam in factories, that the heating power of both diminishes. That this is true there can be no question. The gardener lays it to the boiler, the factory owner to anything but the right cause. Pipes newly used radiate heat very freely, but in two years the water (steam does the same) in the pipes deposits a bluish-black sediment very much like varnish, which diminishes the radiating power of the iron. The operator puts this down to the insufficiency of the boiler, because the house does not get warm as quickly as before. To remedy this, it is necessary to empty the boiler in summer, and allow air to circulate through the whole for two or three months, when both boiler and pipes will perform their work as well as at first. The operator should be instructed by the mechanic that puts them up, if the latter know his business as he ought to know it.

To successfully warm a green-house, *i. e.*, to produce an equable temperature, the pipes must be placed with some judgment. If the house be 100 feet in length, and the water travel quickly, the return pipe near the boiler will not be many degrees cooler than the flow, and very few feet more piping at the further end from the fire will be necessary; but should the pipes be so laid that the water has a sluggish motion, or should the boiler be of imperfect construction, the lengths of piping will have to be materially increased. However, to most of the boilers now in use and for sale, that complaint does not apply. If the house be 200 feet long, it might require 25 per cent. more piping at the further end from the boiler; and for a general assortment of hot-house plants, I would place my pipes in the following manner:



The figure represents the end of a span-roofed house, 25 feet wide, and as long as the owner might require. A is a table on each side of the house, at a distance of 4 inches from the wall. The usual way is to cover the table close to the front wall in order to economize room. This is false economy, for during cold weather a stratum of cold air is generated under the glass to

the depth of about 12 inches at the bottom of the glass, and in this atmosphere nothing will grow during cold weather. It is better for the cultivator to have an opening as shown at *a*. To convey the air so cooled to the heated air under the table in the direction of the arrows. When spring opens, that space may be occupied at a time when comparatively no artificial heat is required. Each table has a double bottom; the lower one of boards, the upper one of slate Between the floors is one of the pipes to serve for bottom heat for small plants or cuttings (*b*). Under the table four pipes at a convenient distance from the floor (*c*); making in all five pipes on each side of the house—three for the flow and two for the return. The object in using two return pipes is to regulate the heat, equalize the pressure and to cause occasionally a slight variation in heat.

At this writing, it is snowing; mercury about 33 deg; inside of 61 degrees at front wall. Nine inches below the glass 58 deg. This is a slight variation, but the house is five degrees lower than it would be if there were no snow: and the mercury at the lowest part of the roof is five degrees higher than it would be with outside at zero.

In conclusion: What is the excuse for not adopting the better method of heating greenhouses? Is it the first cost? Certainly not, for the labor saved in one winter is fully one-eighth of its cost. Is it the want of means? That can be overcome in one year. Is it the habits or education of the man that prevent him from doing himself a service? This is the most likely solution; and if these few remarks be the means of leading any one to exercise that faculty of judgment, given to all in a greater or less degree, the object of the writer will be answered.

THE WAGENER APPLE IN MICHIGAN.

BY MR. T. T. LYON, PLYMOUTH, MICH

I observe, with a degree of regret, an article in your February issue, extracted from *Michigan Farmer*, speaking very highly of the success of the Wagener apple in Michigan. I regret this not because this variety is believed not to be successful here, but because I can see no reason to believe it more successful than in many other localities.

I have in my orchards a number of trees of Wagener, planted when it was first introduced; say about 1846 or 1847, which I have had the best of opportunity to compare with several hundreds of other varieties, also in my orchards; besides which I have not failed to watch its success in other localities in the State, and I have become satisfied that what popularity it has acquired has mainly arisen from its vigor and excellent habit of growth *in the nursery*, and its very early productiveness; and my observation both at home and abroad has but confirmed my early conviction, that its early and excessive productiveness, unless checked by careful thinning, (which with us, is not to be hoped for), is infallibly fatal to the proper growth and development of the trees, while it further results in inferior size of the fruit, and on account of the short stiff fruit spurs, and the consequent crowding together of the fruit upon the branches, in the actual crowding off of more or less of the fruits in the process of growth, and as a result of the same habit, at the time of gathering, fully one-half the entire crop is found upon the ground, and consequently worthless except for cider.

Inasmuch as I have an intimate personal knowledge of the circumstances under which the article in question found its way into th *Farmer*, I will take occasion to say that the nurseryman in question, (Mr. Husted), has made this variety a specialty, and no doubt he very honestly believes it to be all that he claims, as his personal acquaintance with it is believed to have been mainly in the nursery. I am however well acquainted with the fact that many who have been induced to plant it extensively upon his recommendation, already regret the step. These plantations are mainly in newly settled regions, and hence on virgin soils, on which the tendency to wood growth will probably in part remedy the natural tendency of the variety. Yet notwithstanding this, it is to be feared that the experience of the next few years will determine the extensive planting of this variety to have been a mistake, so far as financial results are concerned.

Mr. Husted also takes occasion to speak of Red Canada as comparatively unsuccessful. It is obvious to all who may be familiar with both varieties, that with its weak, slender habit of growth while young, Red Canada can never be either popular or profitable with nurserymen, and had it not chanced to win popularity upon top-grafted trees, it would in all probability have been comparatively unknown among us as a profitable market fruit; but coming into notice as it did, when an extensive region which in the

early settlement of the State had been planted with seedling orchards were being regrafted, it established itself in eastern Michigan and in the markets of the northwest, as beyond all comparison the most profitable of our market apples. In western Michigan the growing of fruit for the market is a comparatively recent business, and although in eastern Michigan, after a forty years continuous acquaintance with Red Canada (generally under the spurious name of Steele's Red Winter), fully one-third of all the recent orchards are of this variety, it has been but slightly known and sparsely planted at the west, a fact largely to be attributed to the circumstance that it was known as "Steele's Red Winter;" and when trees were ordered from Eastern nurseries under this name, such orders were invariably filled with Baldwin, a fact that beyond doubt has much to do with the general distrust of foreign nurseries among our orchardists.

Although I am not warranted in questioning the allegation of Mr Husted, that Red Canada is unsuccessful with him. I can confidently state that it has been grown, but a few miles distant, for more than fifteen years, and that those who grow it claim that it is quite as successful as it has proved at the east.

STOCK FOR CHERRIES.

BY ADDI.

May I say to your Mr. L. B., that experience, two years in succession, proves to me practically, that either grafting or budding of our Cerasus sylvestris, or what we know as our cultivated Sweet Cherry, upon the wild common sort of our woods, or Cerasus serotina is a waste of time. The buds or grafts will grow to three or four leaves, and possibly a few will continue the first season with five, but that will be their end.

IMMEDIATE EFFECTS OF CROSS FERTILIZATION ON SEED.

BY C. ARNOLD, PARIS, CANADA WEST.

In your February number, for 1871, I sent you a sample of fruit, said to be grown upon the branch of a tree that had for years previous (and this year also) produced pears and pear leaves. The appearance and taste of the pulp, in the opinion of all who saw it and tasted it, being apple. In my communication sent at that time I remarked: "We all know that if we plant a few grains of dark purple corn, and near by we plant white sweet corn, that we shall find in the fall both varieties of corn in the same ear." To this, Mr. Jacob Moore, of Rochester, in the August number of *Horticulturist*, replies: "I differ with him entirely. I don't know any such thing, in fact. I am confident they will show no mixture whatever the first year."

Mr. Moore's remarks appeared to me so very dogmatic and uncourteous, that I did not consider them worthy a reply; but for the sake of experiment, I planted last spring a grain of dark purple corn, of a variety that I knew was not grown, nor would be grown this year near this place, and I now send you *two ears*, one *all purple*, the other without a purple grain in it, but unmistakably composed of two other distinct varieties. Both ears grew upon the same stalk and sprung from this purple seed, and my sole object in sending them, is to show you that I have proved, beyond a doubt, the existence of a phenomenon that most naturalists have called in question, and no one that I am aware of, has ever before proved, viz: What has been termed *superfœtation* in the vegetable kingdom, or in other words, one seed being the joint issue of two males.

As stated above, both the ears of corn grew upon the same stalk, and from the seed of a dark purple corn like that upon the *large ear*. This ear was allowed to be fructified by pollen grown upon its own stalk. The pollen of this purple variety was then all removed and destroyed. And as the silken pistils of the smaller ear began to show themselves, pollen of a *yellow variety* of corn was supplied, by suspending small bottles filled with water and the stalk bearing the pollen plunged therein, then after a short time this yellow pollen was removed, and pollen of a white variety of corn was furnished in the same way. By examining the individual grains upon the small ear you will observe that they are *yellow* at the base and *white* upon the top. You will then please remember the purple seed from which the stalk and the two entirely different ears grew, and after a thorough examination, I feel confident that every unbiased intelligent person will agree with me that in corn at any rate, two different varieties of pollen can be made to influence one seed, and that the pollen will have *an immediate effect upon the color of corn*, if upon nothing else.

Thus far I have confined myself to a simple statement of the facts as they have developed themselves. No doubt many persons who have

given this subject but little attention, will say that even if all this be true, of what practical value can it be to horticulturists or agriculturists. Upon a moment's reflection, however, I think incalculable benefits will be obvious, provided fruits, flowers, cereals, and vegetables shall be found to yield to the same influences in the hands of skilful operators. There is one kind of superfœtation that was observed by Mr. Andrew Knight, of England, many years ago. That is by using two kinds of pollen to the same flower, he succeeded in producing different kinds of peas in the *same pod the first season.* The same thing occurred with me last year by using pollen of Champion of England and Alpha upon the pistil of Little Gem. The product was three different kinds of peas in the same pod. In sowing the seeds of a single raspberry or strawberry, the result will be similar. And in apples, I have reason to believe the first mentioned kind of superfetation is attainable, viz: One individual seed being the joint issue of two males. I send you two apples, that in my opinion, point very strongly in this direction Both apples grew from seeds of a Northern Spy, and although pollen of Spitzenberg and Wagner was applied to its pistil, I have always thought it probable that pollen of a large yellow apple tree that stood close by stole a march upon me and furnished the yellow skin of the apple marked No. 3. The other apple marked No. 4, seems to give almost the fine flesh of Wagner, with the spice and habit of tree of Spitzenberg.

It would be easy to conjecture a thousand articles that might be improved by this process, and no doubt many will suggest themselves to your numerous readers. I will mention only one other that I have had experience with that would seem to be a good subject for such improvement, viz: Wheat. The greatest difficulty that I have had to contend with in crossing wheat has been its tendency to sport and run into different forms after being thoroughly crossed. To such an extent has this peculiarity shown itself in some instances, that a person who did not know to the contrary, would have supposed on examining the straw and grain, that *several* varieties of wheat had been sown. This has always appeared to me strange and unaccountable, and I believe was equally so to Mr. Knight in his day. I now hope that this difficulty has been overcome and that by selection and using pollen of two different varieties of wheat to one pistil, this difficulty will be overcome. Some three years ago I determined to try this method of crossing wheat, and although I must confess I had at that time but little faith in being able to place one embryo grain of wheat under the influence of pollen of two other distinct varieties of wheat, yet the wheat produced by the operation seems to me to strongly indicate it. At all events its character seems perfectly fixed, and it is so improved in productiveness, hardiness, and quality, that the Ontario Agricultural Society, after appointing a committee to investigate it, awarded me a gold medal for producing it.

I am well aware that many intelligent persons are of opinion that so soon as a pollen grain falls upon the stigma, it passes *entire* and immediately into the ovary, and that it can then be influenced by no other pollen. For my own part I would much rather believe that each pollen grain is filled with thousands of minute separate particles, each etheralized. It may be that some of these particles of this fovilla, as it is called, may exhaust themselves upon the stigma, and then other particles may be supplied of another variety, and conjointly aid in the formation of one individual seed. But my object in writing is not to advocate or condemn any theory, new or old, but merely to state facts as I have found them.

I trust that you will submit the two ears of corn to a thorough examination by the scientists of Philadelphia, and then return the *small ear* to me, that I may further experiment with it.

I have put in two apples of another variety, No. 1, to show that the several seeds in the same apple will produce quite distinct varieties of fruit. These three kinds all come from the seed of one Northern Spy.

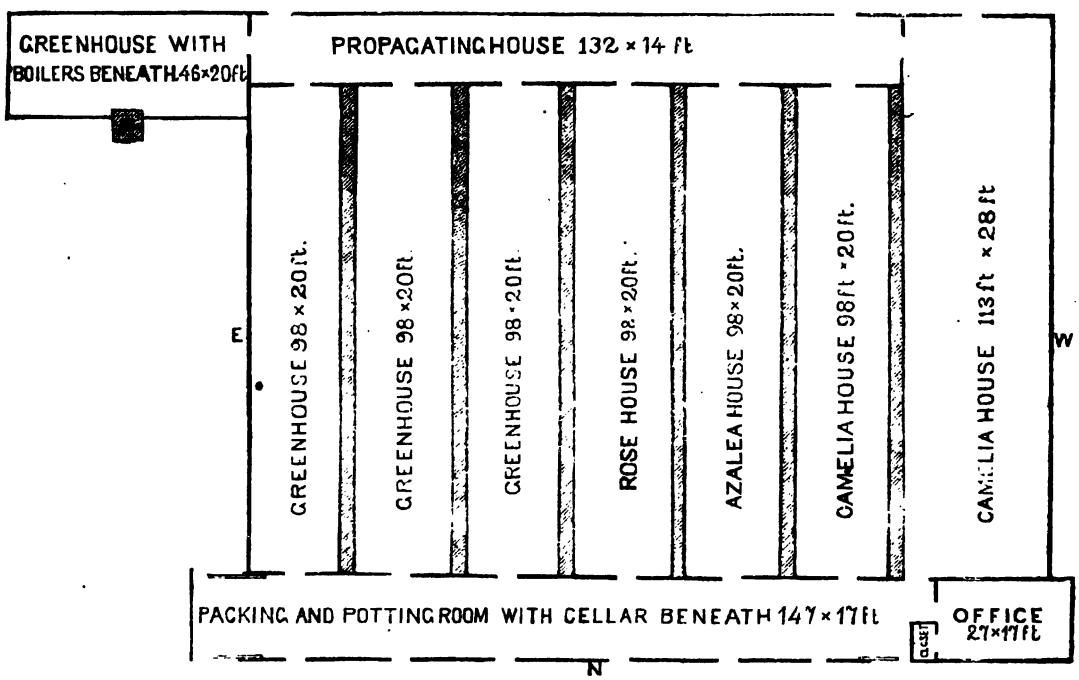
HOUSES OF S. B. PARSONS & CO.

BY X.

The following is a diagram of a range of houses recently erected by S. B. Parsons & Sons, of the Kissena Nurseries, Flushing, N. Y. They are erected on locust posts with tinned valleys between the houses and the sides bricked up with brick on edge. There is a grade of two feet from north to south, and three feet from east to west. Each house opens by a glass door into the propagating house and packing room, thus enabling the foreman to see at a glance the whereabouts of the men, and also giving facilities for carrying out plants from each house for packing, or other

purposes. Under the packing room is a capacious cellar into which a trap door opens from the front of each house. By this means stocks in pots for grafting can be handed up from the cellar with great ease. Between the doors of the greenhouses and in the potting room, and also below the outside windows of the potting room and potting benches, soil and pots are passed on these benches from carts through the outside windows, or can be carried in on a light railroad track to run through the centre of the potting shed and connect all the houses with the playing ground. Thus stocks for grafting kept in the cellar can be handed up through the trap doors into the grafting houses, and after being kept close the required time, can be put on the connecting these houses with valleys was borrowed from England in 1859, and the first houses in this country on that plan were erected by S. B. Parsons, in 1860. It has since been extensively used, and is found to be an economical and useful mode.

The heating apparatus was furnished and put up by the Shawmut Iron Works, Cambridgeport, Mass. The boilers, three in number, are arranged side by side in the boiler room at the lower end of the lean-to house, and are so connected that either one can be used separately or all in connection. But two are required to heat the houses, the other being held as a reserve. Each boiler has a heating capacity of about fifteen horse power, and is connected to an eight



railroad and run out to the frames in the plunging ground. The potting room is heated by one flow and one return pipe, which enables work to be done safely in the coldest weather. The office is also heated by hot water.

Watering pots are very little used, and one man in a few hours can water all the houses by means of a hose connecting with a hydrant in each house, to which the water flows from a reservoir on a neighboring hill. The mode of inch main and return flow pipe with six inch pipe, fitted with valves to shut off either boiler if necessary. The main flow pipe passes through the entire length of the lean-to, and across one end of the upper house, at which point is placed an expansion tank to receive the expansion of water for the whole block of houses. From this point the distributing flow runs back toward the boiler room, and from it the branches are taken for supplying the circulating pipes. These are

also connected to the return flow which carries the water back to the boilers to be re-heated Each house has two sets of heating, or circulating pipes, which are so arranged that either or both can be shut off, or so checked in their flow as to regulate the heat to any required temperature. All the pipes are so arranged as not to interfere with the grade of the walks.

Since they were erected the cold has been 22° below zero, and the houses were kept in a state entirely satisfactory. During that extreme cold the circulation was shut off from the large western house, and yet the temperature was kept sufficient because the grade enabled it to gather in heat from the other houses through the trench which held the connecting pipes.

AMERICAN HORTICULTURE.

Address delivered before the Germantown Horticultural Society, January, 1873.

BY THE PRESIDENT, JOHN JAY SMITH, ESQ.

[*Condensed for the Gardener's Monthly.*]

(*Concluded.*)

NOT TOO OLD TO PLANT.

Many persons think they are too old to plant. This is an absurdity. Men at even seventy do not hesitate to lay up means for their children; then why not plant for posterity, and why give up to self what was meant for mankind? It is founded on a vulgar error, on mistaken and prejudicial notions. Many trees only ten years planted are known to be between thirty and forty feet in height. At thirty feet, a tree, practically speaking, will effect all the general purposes for which trees are planted. It will then afford shade and shelter. It will display individuality of beauty and character, and confer expression on landscape scenery, while during all the period of its growth, it will give pleasure and inspire hope. Very many trees bear fruit in a much shorter period than ten years.

THE USES OF TREES

is a large subject, on which time will not now permit us to enter. One instance must suffice. There is a variety of Gleditschia called *horrida*, which has a tremendous crop of ugly spines attached all over its body, thrice as numerous and dangerous as the triacanthos. It is put to a moral use. When a man has committed a crime against society, he is stripped and sent to the top on a ladder. The ladder being removed, he gets down as well as he can. This mode of punishment is said to be more effectual of reform than even the famed Delaware whipping post, and might be economically substituted.

THE PROBLEM OF AMERICA.

Our ancestors were too hasty in cutting down. Hence our great problem in America is how to replace what has been ruthlessly wasted. We must provide shelter for the prairies, and with our great stretch of sea-coast, we want to know what trees will flourish near salt water, exposed to pitiless winds; and we want information regarding the suitability of different vegetations in our variable climates. All this is being studied and made known. I do not despair of seeing the transactions of this society published, containing such knowledge as this, and much more that our young country is yearning to know. Here is work for a horticultural society to employ its extra means on experiments of world-wide interest.

AN ACCLIMATION SOCIETY

is much required in America. Who shall say that Germantown may not initiate it? but with aid from other kindred societies.

SUB-TROPICAL PLANTS

also afford a wide field for inquiry and instruction. The subject has been treated with effect in a new work by a rising English writer, William Robinson, whose book should be in the hands of every practitioner of horticulture. And this leads naturally to the subject of

A HORTICULTURAL LIBRARY,

an acquisition we should not be slow in securing. To this a portion of the society's means should be devoted. Very probably many members have books to bestow.

THE LANDSCAPE GARDENER

The rule enforced by Loudon being as previously stated, if not always to its full extent, we see the necessity of the gardener, the horticulturist, the nurseryman and the landscape gardener; for very few will undertake the importation of the plants or trees of each kind required. We must have large magazines of plants, so to speak, from which each can draw his limited supplies.

The landscape gardener is appearing in America wherever his services are demanded. We have good artists among us in this line, and perhaps a few pretenders. Sir Joseph Paxton's will not be wanting as demand creates supply. His art should always be called in where the best permanent effects are desired. He can tell to what size a tree will attain. Without him a

few years must bring into requisition the dreaded axe and the knife. If it is almost as difficult to keep money as to make it, so we may say it is more difficult to know *what* to plant than to bring numerous specimens together. On the subject of planting it is still well to remember Cicero's advice: "When to build is the question, a man should reflect a great while, and perhaps not build at all; but when to plant, he should *not* reflect, but plant immediately." Much time is frequently wasted and years lost by not commencing with trees the first year your property is in possession.

THE EDUCATION AGE.

We have had our Iron and our Golden Age. This is emphatically that of Education. It is now proposed that every human being shall have an opportunity in life to rise with the world's rising fortunes. Schools without individual payment for instruction are formed almost everywhere, and they are to teach apt scholars, differing wonderfully from the old and mentally idle Spaniards of California, all now unheard of. No sooner had we secured possession of that great State, then a mere terra incognita, than we picked up gold by millions of dollars, found the great trees and the Yo-Semite, and in the heart of the Rocky Mountains we are now surveying a great

NATIONAL PARK,

more wonderful than anything related in the Arabian Nights, with geysers more astonishing than the long believed unique water spouts of Iceland.

AMERICAN PLANTS.

From those once far off countries we shall have new introductions for the garden. We must take care that Europeans do not surpass us in these, as they have surpassed us in the skill with which they cultivate what they call "American plants," including one of our greatest and most neglected glories, the Rhododendron. The Yew grows more rapidly here than in England. Suppose our predecessors of two hundred years ago had planted Germantown simply with cedars of Lebanon, Rhododendrons and Yews! These alone would have made our district the admiration of the world, and shall we, because they grow but slowly, deprive our successors of the *next* two hundred years, of this imposing beauty—this joy? Loudon immortalizes the planters who introduced "Cedars" on their domains. A Scotch Duke planted his bleak hills with the Larch, and lived to see ships launched from the timber, and now the Larch plantings are yielding immense profits, from the demand for railroad ties. The Marquis of Blandford, afterwards Duke of Marlboro,' did not hesitate to pay enormous prices for everything beautiful, and he is remembered for this single act of bounty to his country, and for this alone. Let us imitate all this.

ADVANCE IN HORTICULTURE.

All the good things of Europe have been, or are to be, repeated in America. I have recorded but three or four greenhouses in Philadelphia sixty years ago. A valued friend, who knows, assures me there are now in Germantown alone, seventy-five greenhouses, graperies, and plant cases which deserve the name, besides uncounted hotbeds and appliances for an early salad. Twenty years ago I doubt if five could have been found. This neighborhood, too, abounds in plant structures.

The advance in horticulture is one of the great triumphs of our age. This period of a few decades has seen the products of the whole world, once unknown and despised, brought to our doors and cultivated. Manufactures and the arts are vastly indebted to the garden for their success. We have employed new grasses for useful purposes, and even subdued the hard trees of the forest for paper.

SIR WILLIAM HOOKER'S MUSEUM.

One of the very useful things done by the late Sir William Hooker, was the formation of a museum in which he collected all the plants and their woods that are useful to manufactures, adding, with singular success, every manufactured product from each kind; an institution that it will be well to keep in mind in our city, where the products of the mill, the loom, and the workshop, so predominate. It should be side by side with the proposed art gallery, and may be considered quite as useful.

THE NEIGHBORHOOD OF GERMANTOWN,

as I have said, is replete with means of study. We have some native advantages of soil, elevation and water. We have resources in conservatories, greenhouses, plant cases, and gardens. We have also celebrated botanical fields.

FIELD ASSOCIATIONS.

It is now the custom in Great Britain, the fashion I might say, to form field associations from the members of the various horticultural societies, to explore different neighborhoods for new and curious plants. They are attended by

both ladies and gentlemen, affording opportunity for social intercourse, while teaching valuable information. Herbariums are thus formed, and a taste for botany is implanted. The members of this little band might with great advantage institute such an association. Let them at the same time, caution their excursionists, when they discover a rich placer of the fringed Gentain. the untamed Epigæa, or a rare fern, not wantonly to pull all up by the roots, leaving nothing for successors. Some of the best botanical grounds have suffered total extinction in this way. The native Kalmia, which was formerly abundant in this vicinity, has mostly disappeared. The Gentain and Epigæa are such favorites that we are doing our very best to extinguish the race. This association should also set its face against the too common theft of the tops of evergreens for Christmas trees.

If we are rich beyond the average, in appliances for instruction, we are moreover fortunate in being near to our co-workers, the great

PHILADELPHIA HORTICULTURAL SOCIETY,

of which many of us are members. To all the associates of that time-honored institution we shall extend the cordial hand of greeting, hoping that we shall often have the pleasure of acknowledging their presence, as well as their contributions and good will, and not only so, but all similar societies everywhere. When they may have new, rare, or useful, or ornamental objects, we shall always welcome these also to our exhibitions.

These displays should present some great beauty or novelty. In this rural neighborhood, where almost every householder has space enough for cultivation of some fruits or flowers, we shall be expected to show results that cannot be obtained in the closely packed city. We shall not grudge *them* their triumphs, but will endeavor to outvie them.

I must refer you to

THE LITERATURE OF BOTANY AND GARDENING,

as well as to their poetry. Fortunately these are extensive and entertaining, from Pliny and Evelyn to Cowper, while but yesterday Whittier has given us a poem about Germantown, Pastorius, the Aloe, and all that.

We place Cowper among the most pleasing of the poets for his delicate appreciation of the delights afforded by a garden. Who does not remember the lines beginning,

"Who loves a garden loves a greenhouse too?"

But there may be others who will listen to the description of the labors and troubles inevitable to the cultivator. They forcibly recall the care and attention bestowed upon the flowers and fruits provided for the table and ball room. They should be conned by the belle of the dance when she is carelessly holding the petals that have cost so much:

"Grudge not, ye rich," &c.

THE BOOKS OF THE MASTER MINDS,

the great explorers of nature, are full of anecdote and interest, of knowledge and of fact. The whole world has been, as it were but yesterday, explored for the benefit of the botanist and culturist.

AN UNDEVOUT BOTANIST.

If it be a truth that "an undevout astronomer is mad," shall we not also say as much of the undevout botanist? For, when he studies the mystery of the science, he must arrive at the fact that in the entire range of even the inanimate world there is the most evident *design*—a design running through the whole enormous catalogue, so extensive that the life of man is not long enough to understand it all. This consideration cannot fail to lead him onward in the sublime pathway

"From Nature up to Nature's God."

LOUDON

is our great leader. His works may be consulted with advantage by even the best informed.

DOWNING.

In our country, Downing happily appeared just after steam navigation rendered it possible, nay, easy, to import into America the rare trees and plants of all distant regions. He inaugurated the era of fine planting, and may be still consulted on his topics, with the certainty of obtaining correct information. He has been followed by apt students, well informed, and with a genius for his pursuit. His premature death will be long mourned as a misfortune.

Remembering the

FRUITS, LARGE AND SMALL,

we must not forget, also, that to this society is entrusted the teaching as to what fruits are the best. The best raspberry or strawberry to plant, will continue to be of interest so long as new kinds are brought forward. The best peaches, the best grapes for indoor or outdoor culture, are wants of everybody who has a garden. This society must keep pace with the knowledge of the day, and it must show each in

its season the very best, not only for marketing, for that is often only the best for looks or easy to transport, but the best for private families in respect to flavor and beauty, as well as productiveness. The public will look forward to the exhibitions of the Germantown Horticultural Society for facts and truths in these matters, and I feel sure they will not be disappointed.

In Europe, and especially on the continent,

THE ROSE

assumes an importance as yet comparatively unknown among us. This again is due partly to climate; but they employ art, by grafting or budding the finest kinds as

STANDARDS,

four feet high, on the Manetti, or Dog rose stocks. We have then a living bouquet of unrivalled beauty.

Life seems to me worth taking care of when, every day in winter, we can enter and enjoy the fragrance and the beauty of a well kept conservatory or rose house. Gardeners should prepare such gratifications for themselves, for according to late statistics, they are

THE LONGEST LIVED

of all the professions. A recent paper read to the Institute of Actuaries of Great Britain, on the influence of occupation on health, shows the ratio of mortality per thousand persons from 25 to 60 years of age to be of gardeners, 10.4; masons, 17.6; beer sellers, 21.5; wine and spirit merchants, 25; inn and hotel keepers, 27. Between the ages of 45 and 65, 32.2 hotel keepers die for every 14.5 gardeners. Let the Germantown venders of poison take note of it. It seems as if, I might say, there is, besides the reform association, an old man with a scythe on his shoulder close behind them. Against his decision they will have no vote of option, local or otherwise.

GERMANTOWN IS WAKING UP—

this society is one evidence, while there are several other indications. Our infant society is not alone; but we have an especial aid to this new impetus, without which our efforts would be much retarded, in

THE GERMANTOWN DAILY CHRONICLE,

a most valuable institution for all good purposes, and already affording evidence that it will give to all our rightly directed movements its substantial aid. We have also the *Gardener's Monthly*, edited in Germantown, by one of the best botanists and practical cultivators in America, which circulates everywhere, to the enlightenment of thousands. Then we have the long established *Telegraph*, a weekly so well-known for its advocacy of farm and garden culture, that it is only necessary to name it as another evidence of Germantown progression.

[Mr. Smith then gave a vivid description of the additional pleasure to be derived from a know ledge of plants, which, wherever seen, stand up to shake hands with us; and added that in an imaginary model republic, no one should be allowed to travel who could not distinguish the families at least to which flowers belong, or know at sight our principal botanical riches. He closed with the following, which is so good that we cannot omit it, and with a vote of thanks to the orator and contributors, a very pleasant evening closed:]

THE LADIES.

There can be no man here who is not cheered to-night by the presence of the ladies. Woman's rights are sometimes discussed, but there is at least one right she shall never be deprived of—the right to possess, to control, to work in, and to thoroughly enjoy a garden. They do not require, and do not want defenders. In a new translation of Aristophanes, by an English clergyman named Collins, I find the following free lines from the women's chorus of a Greek play, which run so trippingly, and are so appropriate, that with them I close these hasty remarks, which have already detained you too long. But the subject is really inexhaustible.

Without the presence and approbation of the ladies, no Horticultural society, no garden would be attractive. They are the best patrons of the advanced gardener. They are the best of creation—our household gods, in fact the fairest flowers we have, or can hope to see:

"They're always abusing the women
As a terrible plague to men;
They say we're the root of all evil,
And repeat it again and again.

Of war, and quarrels, and blood-shed,
All mischief too, be what it may;
And pray, then, why do you marry us,
If we're all the plagues you say?

And why do you take such care of us,
And keep us so safe at home,
And are never easy a moment
If ever we chance to roam?

When you ought to be thanking Heaven
That your Plague is out of the way,
You all keep fussing and fretting—
"Where is my Plague to-day?"

If a Plague peeps out of the window,
Up go the eyes of the men;
If she hides, they all keep staring
Until she looks out again."

THE CURCULIO AND THE PEA BEETLE.

BY S. S. R.

At the late meeting of the Pennsylvania Fruit Grower's Society, held at Reading, Penna., it appears that Col. John A. Sheetz, of Womelsdorf, stated "that he had discovered a remarkable similarity between the curculio of the plum and the pea beetle, and from a microscopic examination, regarded them as the same." To our apprehension, that "discovery" was not a *very* "remarkable" one, for there is a *mimicry* in the insect realm, through which a superficial observer may readily confound one species with another, even belonging to different orders. But when a "microscopic examination" is made by one professing to study the distinctive characters of insects, we look for conclusions more definite and reliable than those Mr. Sheetz has come to.

The plum curculio and the pea beetle are no more "the same" than a sheep and a goat are the same, or a horse and an ass. It is a reflection upon the entomological researches of more than half a century to make such a statement at this time. If they were the same we might soon be rid of them; for it would only require a universal consent to destroy all the infested peas, and such is the antipathy to the *curculio*, that the country would cheerfully make the sacrifice in order to destroy so formidable a foe to peaches and plums as that insect is.

The statement hardly needs a refutation—the two insects being so dissimilar in their stuctures and habits; and yet it was made so confidently, and before such an intelligent body of men, involving as it did, such an important interest, that many of the members were taken "aback," and hardly knew what reply to make. Of course it is well known to the commonest observer that the pea beetle passes its larval, pupal, and hybernating periods within the seed of the pea, and nowhere else, unless the life of a mature individual should be prolonged into the winter following its summer sojourn.

This is not the case with the plum curculio, which it is just as well known, passes its larval period in a plum, a peach, a cherry, or some other kind of fruit, and its pupal and hybernating periods in the ground. But these two insects differ quite as much in their forms as they do in their habits. They do not belong to the same family, and therefore quite distinct.

The pea beetle, (*Bruchus pisi*), is the type of the family *Bruchidæ*, a term derived from the Greek, which means *to bite;* and it has not the extended proboscis, or snout, which distinguishes the plum curculio, nor yet its rough or tubercular wing covers. There are at least fifteen species of these bruchians known to American entomology, all of which deposit their eggs in the germs of peas, beans, and other legumi-nous plants. But there are several other allied genera also destitute of the long snout.

Curculio, which is Latin, and simply means *a corn worm*, is the type of a large family of "snout beetles," or weevils, (*Curculionidæ*), but as a distinctive genus, has now, so far as I know, not a single species in this country. They are all ruled out into other genera. In the time of Linnæus, this term would have included the whole *three hundred species* or more, now known to American entomology, but not one of which is retained in the original genus *curculio*. This term has become popularized, and is mainly applied to the insect that infests the peaches and the plums, *Conotrachelus nenuphar*, and yet we have twelve or fourteen species belonging to *this* genus.

Practically speaking, therefore, we have at least three hundred species of curculians, or snout beetles, divided into some seventy-five or eighty genera, without including any of the bruchians; and these vary in size from the head of a small pin up to an inch and a half or more in length. They infest seeds, grains, nuts, fruits and timber, as well as the leaves and stems of vegetation. Each is organically adapted to the substance upon which it feeds. Those which infest the chinquapin and the chestnut, have a rostrum or snout, long enough to penetrate the fruit, in spite of the defending spines. Each has an interesting, if not a useful history, which will probably never be written, and if written, perhaps never would be read.

I regret that these things are not more generally read and retained, for no true entomologist desires to monopolize the knowledge extant on this subject, and hide it "under a bushel." Nor

do I desire to so magnify this subject that it will discourage amateurs or others from investigating and exploring the deep *arcana* of the insect world. But I wish to impress the fact that the scientific *status* of the plum weevil and the pea beetle have been fixed long ago, and therefore all speculations intending to identify them as the same insect, are worse than useless, and is not the kind of knowledge that the farmer and fruit grower now most needs. Science has established what these insects are, and when and where to look for them, and it is left to those who encounter them in their daily avocations to determine what is the best remedy for their destruction, and how and where to apply it.

Col. Sheetz said that he found jarring the trees, and syringing them with dilute carbolic acid, effective remedies. This is good common sense, and without disregarding other auxiliary remedies, is perhaps, the best that has yet been discovered. But if we can bring our fruit trees into a profuse bearing condition, one need not dread the curculio. There were as many curculios when I was a boy as there are now, but there was immensely more fruit, and this insect pruned it out.

EDITORIAL.

IMPROVEMENT OF FLOWERS.

Every one knows how great a variety a few simple forms of flowers have given us. A very few years ago we had but one or two Verbenas, Pansies, Geraniums, Fuchsias, Chrysanthemums, and so forth,—but how many we have now needs no remark.

It is usual to speak of the vast changes in these few simple flowers, as being the result of the florist's skill. It is said that these numerous varieties are the result of the florist's knowledge in hybridizing; and it is very common to give to hybridization all the credit for the great change. We have to thank the florist undoubtedly; but it is rather the florist's care than the florist's skill. It is Nature herself which changes. The Florist does little more than say in which direction the change shall go.

It is recognized that Nature will change of her own unaided power. Florists call these changes "variations." There is no hybridization required; no peculiar soil or treatment brings it about; but all at once, and no one knows why, some new form will appear, so far as the human mind has yet discovered, independent of any extraneous agency whatever. Science has recognized this tendency to change under the name of "Evolution;" and some have endeavored even to account for the origin of species by taking these known variations as a basis, and running change back to an unlimited degree.

However this may be, our purpose here is to show our readers that this principle of inherent change is possessed by all plants, independent of cross fertilization, and that this principle is really of more importance in the improvement of our races of flowers than is generally supposed.

For instance, there was but one species of Dahlia introduced. There was nothing to hybridize with, yet by watching for Nature's voluntary changes, saving seed from these advanced individuals. and so on again and again, we have brought the Dahlia up to its present stage. In the Dahlia there has been hardly the attempt at hybridization, yet we see how numerous and how striking have been the changes. The original wild Dahlia, when first brought to the notice of cultivators, had little more to recommend it than the wild asters of our woods and fields

The Cineraria is another plant of which we had but one solitary species to begin with, as is also true of the Carnation, Heliotrope, Pansy, Petunia, Hollyhock, China Aster and many other things. There are allied species of some of these known, but they had no hand in the change we now see. In a state of nature these things change just as much as they do under culture; but Nature does not select as man does, and hence, they generally get crowded out. Indeed, it has always seemed to the writer that the principles of the struggle for life, on which Mr. Darwin founded his theory of natural selection to account for the origin of species, would in as many cases operate against the continuance of new forms, as in favor of their preservation. A single individual, though with

Brobdignagian proportions, is likely to succumb if attacked at once by a thousand Lilliputians.

So far as hybridization is concerned, we do not owe very much to it in starting our first variations in florists' flowers. The Fuchsia, Pentstemon, Phloxes, Tropœolums and a few others were, it is true, of not much importance as florists' flowers, until cross impregnation was resorted to. But it is just as likely that if the attempt had been made independent of this cross practice, that just as striking changes might have been found to result from simple evolution with selection, as from the use of the pollen of differing forms in hybridization.

Our object in this paper is to encourage our readers to try themselves and aid floral progress in the evolution of new forms. There is no one who grows a flower of any kind, but may produce something more striking than the horticultural world has yet seen. It may be that we have a plant growing which produces a long, narrow petal, and we know if it were broad or round how beautiful it would be. Sowing seed from this we note among the progeny one which has a little broader petal than another. Seed from this again, and selecting again the broadest will in all probability produce the desired result. This is the way the Pansy was first brought to its present perfection of form. In its wild state, in English corn-fields, the two upper petals are much the largest, and often the two lateral ones are less than the bottom one; but by gradually selecting from those which exhibited an increase in the proportionate size of these lower petals, the perfectly round ones so prized by florists have been obtained. It is the same in regard to the thick velvety petals, so much admired in this flower; color, markings, outline, and so forth; and it is in this way that we have got so much more of value in floral variety, and in the rare and beautiful form.

There is no mystery about it. Any one may be an improver who so desires.

FREEZING OF THE SAP IN PLANTS.

If people would only reflect that very few things are more than partially true, we should have fewer errors in the world. Absolute truth is rare yet in society, in politics, and in science itself. "Principles" are brought forward on which to establish law, which are only correct "so far as they go;" but on the supposition that they are wholly correct, get us into trouble all round.

In Horticulture this is particularly the case. One man institutes a set of experiments, which result in a certain way, and all the world forever afterwards applies this single experiment to all sorts of things, in all sorts of times, and under the most opposite circumstances. To-day, if we are to discuss any question in vegetable physiology, it is a rare chance if we are not referred to Grew, or Hale, or Senebier, or Loudon, or Knight, or Lindley, who made a few score of experiments, in the long dim light of ages past. No one worships these great heroes in science, be they living or dead, more than we do; but we contend that common sense is a better guide than the most inspired leader science ever bore for us. In regard to the sap freezing question, we found years ago that "authority" was against us. We thought however we had placed it in the light of common sense, and that the world had followed us wholly by this time. But it appears not wholly, as the following from the *New England Farmer* shows:

"At the risk of being classed with the irreverent radical, I feel obliged, notwithstanding my great respect for the learned gentleman, to say that President Meehan and I differ in opinion on the matter of the freezing of sap in plants. I cannot agree with him that "the sap in plants, like the blood in animals, cannot freeze and retain life." From the plant itself, a better authority, I get a different statement.

"For instance: I have repeatedly taken geraniums from my garden and potted them for the house, after the succulent leaves had been frozen stiff, and those same leaves remained on the plants green and healthy for months afterward. Here the sap was surely frozen; but cold water was freely showered over the plant, and it came out uninjured. If the tender geranium can thus live after the freezing of its sap, it would seem likely that the oak and pine can do it as well.

"As to the freezing of the *roots* of plants—who doubts that the roots of the parsnips we leave in the ground through the winter freeze with the ground in which they are enclosed? Do we not leave them there because we believe freezing improves their flavor? It is no uncommon thing for turnips to be frozen into the ground in the autumn—frozen thoroughly to the heart—and yet when they have afterward thawed gradually with the ground, and been carefully harvested and stored where they will not again freeze, they may the next season be successfully used to raise seed from. It also frequently happens that small turnips which are left in the ground all winter where they grew, will, in the spring, send out new leaves, and shoot up a seed stem. In this we have evidence that the sap in the *roots* of *some* plants may be frozen without destroying the plant; and if the roots of these very juicy plants may survive severe freezing, does it not seem

at least as likely that the roots of any of our hardy trees may be so constituted as to bear uninjured the effects of frost?"

We like the tone of this communication. The appeal to the plant suits us exactly; but lest we mistake the plant's language, let us first take common sense. This great authority tells us that life itself is but heat transformed, that without heat there can be no life. When, therefore, a plant is *frozen*—when, in other words, it has lost its heat, for life cannot be sustained at so low a temperatnre as 32°, we think the living thing must go. If therefore the plant tells us "it is alive" after its internal temperature has fallen below 32°, we prefer not to believe it, but would rather imagine that its spirit has been called up by some medium to answer for it.

Again, common sense tells us that water when it freezes expands. If there be any who do not understand this, let them put a bottle of water out in the frost. It will burst. A turnip or parsnip is *mostly* water, and if it really froze there would be the biggest kind of expansion; but a parsnip three inches thick in the fall of the year, will be found to be only three inches thick in the ground, though the thermometer be at zero, and we should therefore doubt whether the parsnip told the truth if it said to us that it was frozen through. But common sense still helps us further. In all the liquids frozen through, we have never been able to make a knife penetrate. If any one doubt this, let him try the nearest icicle hanging from tree or roof. But we never yet saw the parsnip, however badly "frozen," that we could not readily run a knife through and through, though mostly water.

Beyond all this, every one knows that at the fall of the leaf, there is no sap to speak of in the maple tree. We may not only pierce the bark, but cut a branch clear across, and only see the faintest moisture. A frost follows at once. The branches are "frozen solid," for of course if the roots protected by earth freeze, the unprotected branches must have a worse ordeal. They remain "frozen solid" till towards spring, when though all nature is still "frozen solid," the sap flows vigorously from the wounded stem. Now common sense tells us that liquid will not flow up through matter "frozen solid," and yet this liquid somehow did flow up through the system during this severe winter weather.

Well all the great names may tell us the plant was frozen through—the plant itself may, as our New England correspondent says it does, say it is frozen through, but we prefer common sense, and don't believe it.

But we have often been over this ground in the *Gardener's Monthly*, and in these past articles, have shown that the plants themselves told us a different tale from what they told to our New England friend. But we thought in this article we would appeal rather to common sense than to isolated facts, and notice whether or not it would have more effect than the other line of argument seems to have had.

OBITUARY.

DR. JOHN TORREY.

On the 10th of March, in the 80th year of his age, passed away the father of modern botany. In its early history, America had many who did it honor; but the botany of every age seems to be of a distinct character from that which preceded it, and botany as it is now in our land, dates in a great measure from the commencement of Dr. Torrey's career. When the Whipple Exploring Expedition returned, the plant collections were determined chiefly by Dr. Torrey, and the result placed him at once, though still young, among the leading botanists of the world. He was so painstaking and so thorough in his investigations, and his knowledge of plant structure and plant life through all its morphological and physiological changes so complete, that he was particularly apt in taking in the best specific and generic character in his dis crimination, and thus it came that a plant named by Dr. Torrey was rarely found to belong to any other position than that in which he had placed it, and his names consequently rarely changed or disturbed.

But the great charm of Dr. Torrey's career was his personal character, which seemed to attract others to him almost on a mere acquaintance, and led them on to share his overflowing enthusiasm in the pursuits he loved. It is very questionable if we should have had an Asa Gray if we had not first been blessed by a Torrey, and in one way or another, thousands can trace their enhanced love of nature, and consequent increased pleasures of life, to the character and labors of this good man. A poet says that when a good man dies the angels weep. They love mankind, and they know how rare and how beneficent to his fellows is a truly good man. Such a character as Dr. Torrey's might well have suggested such a thought as this.

Though well nigh an octogenarian, he seemed

so strong and active that it is hard to realize that he is taken away. It seems but yesterday that we could almost hear the sound of his voice coming out of the letters of his clear and distinct hand writing. He had written for the writer's photograph, and the letter was in reply. As a general thing, we seldom publish private correspondence, but this last note we ever received from him is so overflowing with good will for all, and so characteristic of the enthusiasm of the man, that we are sure his friends will pardon us:

New York, October 12th, 1872.

MY DEAR MR. MEEHAN:—

On my return from California and Colorado, after an absence of more than two months, I found your esteemed favor of August 7th, enclosing a photograph of yourself. I shall place the latter in my album of botanists, of which I have now a pretty large number. Please accept a *carte* of my own old face, taken from a negative for which I sat in July last.

My late journey was the second I have made to California, for I was there in 1865; but I had never till this season visited Colorado. On my way (accompanied by one of my daughters) across the continent, I met at Cheyenne, Mr. John Redfield and his daughter. They had just come from Colorado, and were going to California, so we had their pleasant company for nearly a month. Mr. R., although an active business man, is an ardent lover of natural sciences, and especially of botany. A letter just received from him, states that in his journey he collected specimens of 570 species of plants, and brought them home in good condition. He is a member of the Philadelphia Academy Natural Sciences, and you may be acquainted with him.

I collected pretty largely myself, and although I found little that was new, I had great pleasure in seeing and preserving a goodly number of my old acquaintances. In Colorado I spent most of my time in the mountainous part of the territory, and visited Gray's Peak. Saw Dr. Parry, and spent two days with him at Empire City, which had been his headquarters for several months. Two or three times a week he ascended some mountain to collect herbarium specimens and seeds.

Do you correspond with Bolander & Bloomer, of California? Both of them collect roots, bulbs and seeds as part of their business.

I did not go to Dubuque, for to do so would prevent my visiting the more interesting regions west and southwest. You have probably read Dr. Gray's address on the "B g Trees."

Hoping to see you next winter, or earlier, in Philadelphia, and to have a good botanical talk with you,

I remain, cordially yours,

JOHN TORREY.

P.S.—Don't you rejoice over Dr. Hooker's triumph?

As to specifying all the work which Dr. Torrey has done, it is so well known that it is unnecessary. It is like painting the lily. It is enough that we present the flower, and ask all to admire its purity and fragrance.

HON. SIMON BROWN.

Agricultural literature has met with a loss in the person of Hon. Simon Brown. For years past he has been one of the editors of the *New England Farmer*, which by his labors, has achieved a leading position among the agricul tural literature of the day. Like so many agriculturists and horticulturists recently deceased, Mr. Brown was as highly esteemed for his many virtues as a man, as for the excellent influence he exerted on progressive agriculture.

EDITORIAL NOTES.

DOMESTIC

Temperature to Grow Mushrooms. In past numbers of the *Gardener's Monthly*, we have stated that the chief points in successful mushroom culture is to be able to preserve an uniform atmosphere as regards moisture and heat, and that about 65° is the temperature required. We have heard it stated that a much lower temperature than this is sufficient. This winter we have had an opportunity of observing the continuous production of mushrooms naturally in a greenhouse. Plunging a thermometer in the ground the earth proved 62°, and the atmosphere at the surface 72°. We still think about 65° is the figure to aim at.

American Pomological Society. We notice in some quarters a disposition to urge on the American Pomological Society a departure from its legitimate work and enter the field of general horticulture. The same class of persons have been for years urging that we should add an "agricultural department," a "household department," a "youth's department," and no end of other "departments" to the *Gardener's Monthly*.

We cannot enter here into the reasons why we are compelled to dissent from the opinions of our good friends, nor will we attempt to show why it would be unwise in the Pomological Society to depart from its chosen mission. But we will say emphatically and briefly to the gentlemen who have at heart the interest of the society, don't make the change proposed.

What are Good Flowers. In Europe, the improvers of florist's flowers seek to get races of flowers on certain set standards. A perfectly circular outline is generally the first consideratien. All those which have not this character are generally discarded, no matter what other good points they may have. In this matter we have reference chiefly to the Dahlia, Pansy, Geranium, Cineraria and Primula. Then the colors are to be distinct when there are more than one, not run into one another, as if one had been trying to write with ink on damp paper. The Cineraria and Pansy particularly have been brought to great perfection in these particulars.

Errors. Once in a while some friend calls to our attention some error in some body's paper, which it is thought we ought to notice and correct. But we feel that we have blunders enough of our own, and it is none of our business what other people do. But when an intelligent cotemporary writes the *Cryptomeria japonica* as the *Cryptogamia japonica*, the blunder is so amusing that one may be excused a laugh just this one time.

Post-Office Peculiarities. Among the papers which have ably aided us in our efforts for Post-office reform, the *New York Weekly Tribune* has been particulary conspicuous. Quoting some remarks of ours recently, it pointedly adds:

"The Post-Office is the people's institution. It is a necessity of their prosperity and happiness and comfort. Its management should be plain and simple, and the price of its services should be as small as possible. What it undertakes to do it should do promptly, always manifesting a spirit of accommodation, and keeping clear of ungenerous suspicions. The number of those who care to cheat the Post-Office is very small, but the Department always acts as if everybody had entered into a conspiracy to swindle it out of a shilling or so."

Cut Flowers. Large numbers of people in our Eastern towns, who feel that it is inconvenient for them to grow flowers for themselves, now have a basket or bouquet of flowers sent regularly to their houses once a week from the florists. It is a very pretty custom, and one which gives perhaps as much real gratification as any one of the many fancies which society people indulge in. A New York paper, noticing this growing fashion, says the following are some of the prices which ruled there the past season:

"The following will show the prices paid for leading sorts this winter: The price of a handsome basket is from five to fifty dollars. Bouquets can be made at from three to twenty-five dollars. Single rosebuds cost twenty five cents, and carnations twenty cents. Smilax is sold at one dollar a yard, and violets by the dozen at twelve cents. One spray of lilies of the valley costs twenty-five cents."

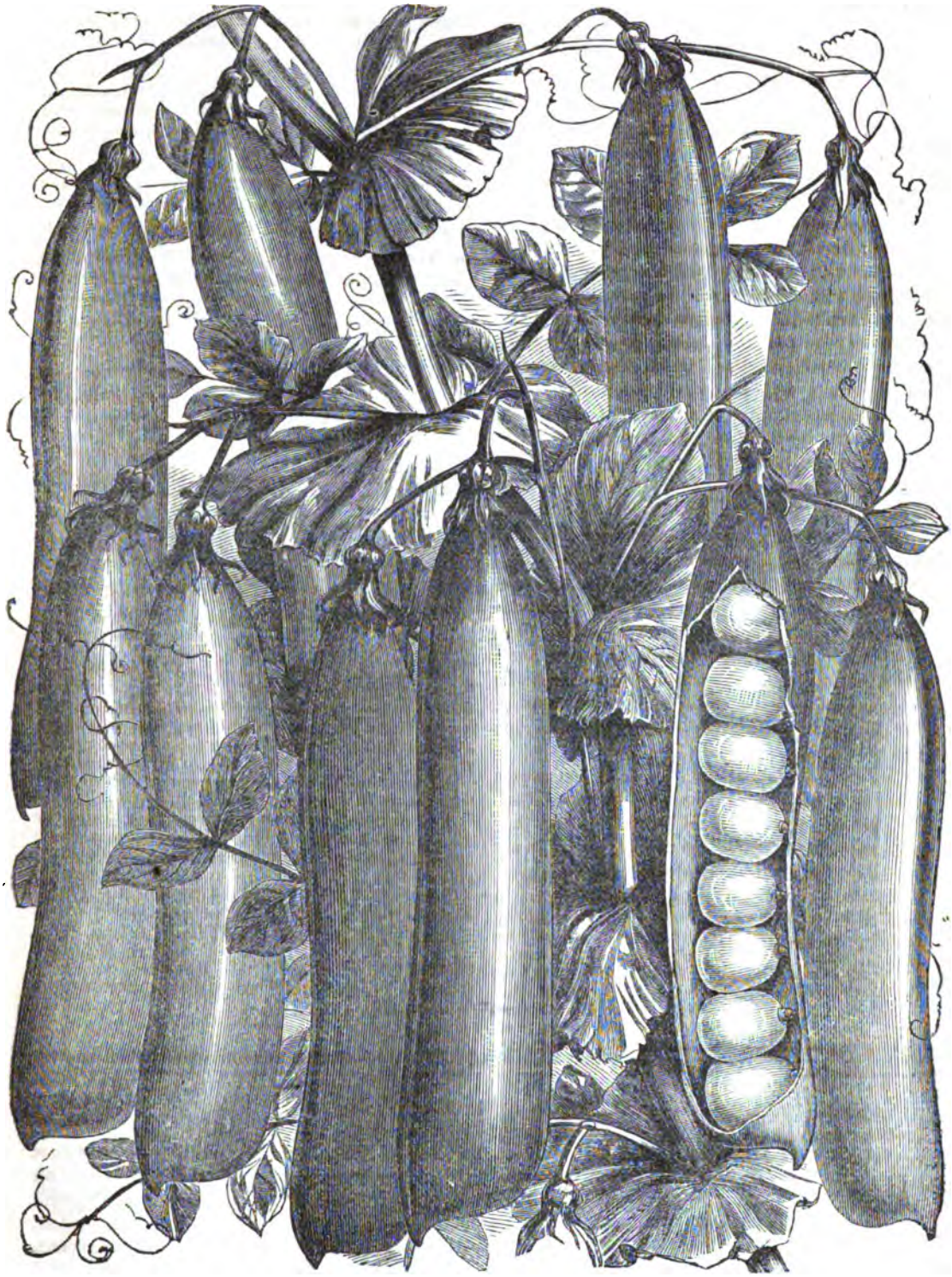
What's in a Name? Some of our English cotemporaries are joining with us in protesting against the ten rod names some varieties are receiving. One says he was looking at what he supposed to be an old fashioned Daffodil, when he thought he heard it exclaim: "Look at me!" "They call me now Pseudo-Narcissus aureus maximus flore pleno sive roseus Tradescanti, and have doubled my price accordingly."

The Poison Vine. We have frequently seen cows eat the young growth of the poison vine, and never knew any harm result to the cow. Some people however have an idea that "milk sickness" in children results from this milk, but it may be but a supposition.

The following from the *Pacific Rural Press*, shows that it has not resulted in injury when eaten there:

"Experiments with animals go to prove that Poison Oak, (*rhus toxicodendron*), may be eaten with impunity. Indeed, we have frequently heard it asserted by persons in California that they have seen it eaten by men, with a view of its acting as an antidote to its poison externally, or from mere braggadocio. All Californians are aware of the violence with which its juice acts when applied to the skin of most persons, many being severely poisoned by its slightest touch. It is also claimed that some people are so sensitive to its action as to be seriously poisoned by its exhalations, without any contact whatever with either its juice or foliage.—*Pacific Rural Press.*

New English Peas. Recently we remarked on the passion developed by our English friends for new peas. They are quite excusable, for there has been remarkable improvement in them of late years. The English climate is more favorable for the full development of the pea than ours is, and those who have had no experience in English gardening can scarcely imagine how very fine they are. In order to give our readers an idea of how fine these new peas are, and how magnificently they grow in Europe, we give an engraving from a photograph taken in England of Carter's "G. F. Wilson" marrow pea. Most of the wrinkled marrow peas are late peas. This one ranks with the very early kinds.



Hot-Water Heating. When a couple of years or so ago, we tried to explain how hot water circulated, and expressed our belief that gravitation had more to do with it than any other principle—though of course not alone—we had no idea of starting such an interesting discussion as has since taken place. Mr. Saunders has since become the leading centre around which the gravitating men have gravitated, and he deserves the honor, for he has attempted what so few disputants do, the proving of his faith by his works. In a local newspaper before us, we find an account of his boiler erected on this principle. The account says it has worked like a charm this winter. The pipes are 2500 feet. At 340 feet from the boiler, one may get the St. Vitus dance by accidentally sitting on the pipe.

Essay on Tree Culture. The Nebraska State Horticultural Society offered a premium of $200 for the best essay on tree culture. This has been secured by Mr. J. T. Allan, of Omaha, one of the largest timber growers in that part of the world.

The Madrona Tree. This is the *Arbutus Menziesii.* Dr. Kellogg, in *California Horticulturist,* writes enthusiastically in praise of this Californian tree. In its evergreen character, he says it is the equal of *Magnolia grandiflora.* The orange and red berries are delicious to the taste—the white and blushing blooms are magnificent. Even the old leaves are grand when they fade, changing from green to gold and purple. It throws up "knees" like the *Taxodium distichum.* Reading this article made us feel a deep regret that all attempt to make it like our Atlantic climate has failed.

Drouth as a Fertilizer. Our agricultural friends do not keep pace with their horticultural brethren, in pressing advancing science into their cause as they go along. Witness the following from the *Country Gentlemen*:

"B F. J. attributes the favorable condition of the corn crop to the protracted drouths of 1870 and 1871, and points to it as 'a piece of strong testimony, going to show that the tendency of plant food is always, except during a rainfall, toward the surface of the earth.'

"This may be; and fruitful seasons follow a drouth, but only when they are favorable or rainy seasons, showery and warm, like the present. One drouth following another, as in the past two years, shows little or no difference. Would another and another added make the difference more clear? Have we data to this effect? On the other hand, will not two or more favorable (moist) seasons in succession produce good crops? Not so good the last, probably, in consequence of material being abstracted from the soil, which is less the case where the growth is less as in a drouth, and may account for the improvement, as land lying idle or 'resting' is thought to improve.

"If the fertilizing matter is brought to the surface by the heat, or the dryness of the land, or by any other means during a drouth, it is clear also that it may be carried further and escape, and there is no question but this is the case where the soil is quite dry and well heated. In this light a drouth is a damage ultimately, as though it may set loose undecomposed matter, it will also lose some. We prefer moist, growing seasons—avoiding extremes of moisture—as they are not only the most productive, but furnish material for enriching the land. Thus what the rains bring down and the air furnishes to the plant, increases the root material, the refuse of the stem and the aftermath. Timely rains and warmth are the great agents of agriculture. What interferes with these must be a loss."

We think our readers have learned the lesson so well that we never, never repeat it again. It is that *dry earth* absorbs ammonia from the atmosphere—wet soil does not, therefore, a dry time is particularly favorable to enriching a soil, so far as ammonia will do it. This is the underlying principle of the fertilizing of soils by drouth. This fact is now so well demonstrated, that "earth closets" are the result.

Seventeen Year Locusts. Prof. C. V. Riley is very anxious to get information about the appearance of the *Cicadas,* or so called 17 and 13 year locusts. It will oblige the editor of the *Gardener's Monthly* if any one who may get any information this year will send it at once to Prof. R., at St. Louis. We extract from Mr. Riley's report below by which people will see what he wants to know:

BROOD VII.—*Tredecim*—1859, 1872.

In the year 1872, and at intervals of thirteen years thereafter, they will in all probability appear in Jackson county and around Cobden and Jonesboro, in Union county, south Illinois, in Kansas, Missouri, Georgia, Louisiana, Tennessee and Mississippi.

According to Mr. Paul Frick, of Jonesboro, they were in Union county, Ill., in 1858, and he also thinks it was a great year for them *about* 1832. Those of 1858 were probably premature stragglers of the 1859 brood, while Mr. Frick is most likely mistaken as to the year 1832, since the Rev. George W. Ferrell, of Cobden, Union county, witnessed their appearance at that place in 1838, and also in 1846 and 1859; and Cyrus Thomas has also recorded their appearance in 1859 in the fifth report of the Illinois State Agricultural Society, page 458, while a paragraph in the Baltimore (Md.) *Sun,* of June 13, 1859, says "the locusts have made their appearance in 'Egypt,' in southern Illinois, and cover woods and orchards in swarms." This brood not improbably extends westward into Missouri, for several of the old settlers around Eureka, in St. Louis county, Mo., recollect it being "locust year" about the time of its last appearance, while Mr. L. D. Votaw, of Eureka, and Wm. Muir, of Fox Creek, Mo., both believe it was exactly nine years

ago, or in the year 1859. Dr. Smith records it in DeKalb, Gwinett and Newton counties, Georgia, in 1846 and '59; in the northern part of Tennessee, also in 1846 and '59; in the whole eastern portion of Mississippi from the ridge, which is 45 miles from the river, on the west to the eastern boundary in 1830, '33, '46 and '59; in Carroll Parish, Louisiana, in 1859; and in Philips county, Kansas, in the same year.

By referring to brood XV, it will be seen that in 1846, or during the first year of the Mexican war, this thirteen year brood appeared simultaneously with a seventeen year brood in western Pennsylvania and Ohio.

I have abundant proof of their appearance in south Illinois, especially in Union county, in St. Louis county, in Missouri, in Tennessee and Mississippi, but not in Georgia or Louisiana.

BROOD VIII.—*Septemdecim*—1855, 1872.

In the year 1872, being the same year as the preceding, and at intervals of seventeen years thereafter, they will, in all probability, appear in the southeastern part of Massachusetts, across Long Island; along the Atlantic coast to Chesapeake Bay, and up the Susquehanna at least as far as to Carlisle in Pennsylvania; also, in Kentucky, at Kanawha in Virginia, and Gallipolis, Ohio, on the Ohio river. This is the brood referred to in brood V., and which there is every reason to believe is the one recorded by Morton in his "Memorial," as occurring in 1633.

Dr. Fitch, in the account of his third brood, (N. Y. Rep. I., p. 39), says: "The third brood appears to have the most extensive geographical range. From the southeastern part of Massachusetts, it extends across Long Island, and along the Atlantic coast to Chesapeake Bay, and up the Susquehanna at least as far as to Carlisle in Pennsylvania; and it probably reaches continuously west to the Ohio, for it occupies the valley of that river at Kanawha in Virginia, and onwards to its mouth, and down the valley of the Mississippi probably to its mouth, and up its tributaries, west, into the Indian Territory. This brood has appeared the present year, 1855, and I have received specimens from Long Island, from south Illinois, and the Creek Indian country west of Arkansas," etc.

There is every reason to believe that Dr. Fitch, in this account, has confounded this *septemdecim* brood VIII., with the great *tredecim* brood XVIII., for it so happened that they both occurred simultaneously in 1855, but the exact dividing line of these two broods is not so easily ascertained. Certainly, after reaching the Ohio river, the *septemdecim* brood extends beyond Gallipolis, Ohio, for Prof. Potter, in his "Notes on the Cicada decem septima," records their appearance at that place in 1821; and Dr. Smith records their appearance at Frankfort, Lexington and Flemingsburg, Kentucky, in 1838 and 1855. But I strongly incline to believe that well nigh the rest of the territory mentioned by Dr. Fitch was occupied by the *tredecim* brood, the reasons for which belief will be found in the account of brood XVIII.

Cicadas also appeared in Buncombe and McDowell counties, North Carolina, in 1855, but until they appear there again it will be impossible to say, positively, whether they belong to this *septemdecim* brood VIII., or to the *tredecim* brood XVIII.

Horticultural Journals.—Miss B. L. P.—The *Gardener's Monthly*, Philadelphia, and the *Horticulturist*, New York, are the principal horticultural journals. You will also find much horticultural matter in the *American Agriculturist.*

Agreed, but don't ignore the *Farmer and Gardener*, which has some claims upon Southern horticulture. So says the *Farmer and Gardener*, and we extract its remarks for the purpose of saying that no Southerner can afford to do without the *Farmer and Gardener*, which, with its horticultural department in the hands of Mr. Berckmans, treats horticultural matters suited to that section of the country in a way which not even the best magazines of Philadelphia or New York has the opportunity to do.

SCRAPS AND QUERIES.

BEST TIME TO CUT GRAFTS.—*S.* asks: "Does there take place any chemical change in the sap of a scion remaining on the tree till mild winter or early spring; or is there any change in the physical condition between say December 1st and March 1st? I have often been told by those who make orchard top grafting a business, that they would much rather have scions cut in March to those cut in early winter, no matter how well the latter are preserved. Conversing with a man who has, probably, set more orchard grafts than any man in the United States, he said twenty-five years of extensive experience had proved to him beyond doubt, that scions cut in March, if not hurt by winter, were far better than those cut in early winter, no matter how well kept. Nurserymen think scions for root grafting must be cut early. Spread a little ink, friend Meehan, on this subject."

[We see here the importance of what is termed

"abstract science." Those who believe that the sap of trees remain frozen solid through the winter, must of necessity, answer this question negatively—that is that there is no change in the sap, for vital action cannot go on when the juices are frozen solid. The change from starch to sugar is a vital, not a chemical process, and the change of the starchy matter of the sugar maple in the fall to the saccharine juice of spring must be the result of vital action going on in the *unfrozen* juices during winter.

We see, therefore, that there is vital action in vegetation during the winter, and thus understand that it is quite possible for some difference to be seen in the vitality of grafts as noticed by our correspondent. We do not know from experience that it is so; but it is evident from the experience referred to, that it may not be altogether an illusion.]

GLADIOLUS BULBLETS.—*W. K. T., Barnesville, O.* asks: "Will you please give through the *Gardener's Monthly*, the best mode of growing Gladiolus bulbs from small bulblets."

[Our own plan is to put them thickly in boxes of earth, as soon as taken from the parent bulb in the fall. Let them sprout as they may in the cool greenhouse during winter, and then dibble them out in spring.]

ADDRESS ON HEDGES.—*B. F., Camden, N. J.* writes: "I have seen with some interest, the remarks of Mr. P Morris in regard to your address at Reading, on the hedge question. It is a subject which we are all interested in about here, and there was just enough reported to make us wish for the whole. Cannot you give it entire in the *Gardener's Monthly*?"

[The address referred to was given off-hand, and we are, therefore, unable to meet our correspondent's wishes. There was a phonographic reporter present, but in whose employ we do not know. We suppose it will turn up some day, and if so, will make a note of it for our correspondent's benefit.]

BONNE SILENE ROSE.—A correspondent asks whether we know this rose to be distinct from Gouboult? We have not seen this rose for some years, but our impression is that it is not the same. It is, however, difficult to decide a question of this kind from memory, and without the two plants side by side.

There is getting to be as much trouble in identifying roses as in strawberries or apples. It is quite likely roses themselves take to varying a little at times independently of seeds. For instance there is a Triumphe de Luxemburg about Philadelphia, which is much better than some others. Some florists regard them as distinct, but there is little doubt they are all from one stock. Some think this improved Luxemburg is the same as Bonne Silene, but there seems to us to be a slight difference. The fact is for winter cutting, for which Bonne Silene is so popular, any one of these roses will satisfy any one.

FRUIT PROSPECTS AT SOUTH PASS, ILLS.—*P. E., March 1st*, writes: "Peaches all killed in Illinois, except a few at Villa Ridge, near Cairo. The trees generally killed in the central part of State. It has been a disastrous winter for western horticulture. Pears not injured here, but reported so farther north. Mercury went 35 and 40° below in central Illinois—here it was 14°."

ASBESTOS ROOFING.—Cheap roofing material is eagerly sought after by so many people, that every new idea is welcomed when it promises well. We have had our attention called to the asbestos roofing material, introduced by Mr. Johns, and believe from all that we have heard of it, that it does not disappoint those who have put their faith in it. It is said to be fire proof, and this alone gives it advantages over many articles in common use.

WOOD LICE IN GREENHOUSES.—*Mrs. D. E. H., Middleburg*, asks: "Will you please tell me through your *Monthly*. without giving my name, how to rid my greenhouse of the wood lice, which trouble very much. At the time the greenhouse was built, an old building was removed to make room for it With all my efforts, the bugs infest the house."

[They are easily caught by putting pieces of boiled potatoes in flower pots, and some dry sweet hay loosely over this. These traps examined once a day, will soon clear a greenhouse of the pest.]

PROPAGATING CURLEY WOODED FORMS OF TREES.—*T. T. N., Carthage, Ind.*, writes: "Cannot *curly walnut*, or other kinds of curly timber be propagated by budding or grafting young stocks of such trees with buds or grafts

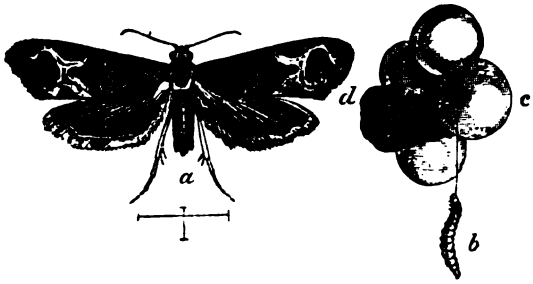
taken from trees that are known to be curly? Such timber is very valuable, and walnut being a rapid grower, a supply could soon be produced if there is any known way of propagating trees that have the trait of growing in that peculiar way. I was led to make such an inquiry by observing that the wood of the Summer bon Cretain pear tree has always a similar *twist*, whether from graft or bud, so far as my knowledge extends."

[We have never been able to form a theory which satisfies us completely as to the cause of curled grain in trees. We can, therefore, offer no opinion in advance of experiment, as to the probability of success. It is, however, as our correspondent suggests, a matter well worth trial, and we should be glad to know that some one is testing it.]

THE GRAPE BERRY MOTH.—A "*New Subscriber*,"—the post-office name illegible—asks: "Can you or any of your correspondents give me any information in regard to habits of the insect, the maggot of which is found in grapes in the fall. It seems to be on the increase in the vineyards of the Hudson river, and if it continues to increase at the present rate, grape growing as a business will have to be discontinued. I have not heard of it in any of the agricultural or horticultural journals of the day, and hope you or some of your correspondents will be able to inform me (through *Gardener's Monthly*) of its habits, and the means of its destruction. When it first appeared it confined itself to one or two trellises, affecting all the fruit, but now has spread over the whole vineyard. What is the root insect, Phyllexera, you speak of in February number? I have not heard of it. I need not say I am a new subscriber.

[This is the Grape Berry Moth, which, with its larva, is represented in the figure 1.]

Fig. 1



[The color (*a*) is deep brown, pale buff and slaty; (*b*) is olive green, or brownish.]

ITS NATURAL HISTORY

may be given as follows: About the 1st of July, the grapes that are attacked by the worm begin to show a discolored spot at the point where the worm entered. (See Fig. 1 c) Upon opening such a grape, the inmate, which is at this time very small and white, with a cinnamon-colored head, will be found at the end of a winding channel. It continues to feed on the pulp of the fruit, and upon reaching the seeds, generally eats out their interior. As it matures it becomes darker, being either of an olive-green or dark brown color, with a honey-yellow head, and if one grape is not sufficient, it fastens the already ruined grape to an adjoining one, by means of silken threads, and proceeds to burrow in it as it did in the first. When full grown it presents the appearance of Figure 1 *b*, and is exceedingly active. As soon as the grape is touched the worm will wriggle out of it, and rapidly let itself to the ground, by means of its ever ready silken thread, unless care be taken to prevent its so doing. The cocoon is often formed on the leaves of the vine, in a manner essentially characteristic. After covering a given spot with silk, the worm cuts out a clean oval flap, leaving it hinged on one side, and rolling this flap over, fastens it to the leaf, and thus forms for itself a cozy little house. One of these cocoons is represented at Figure 2 *b*, and though the cut is

[*Fig.* 2.]

a *b*

Color, (*a*) honey-yellow.

sometimes less regular than shown in the figure, it is undoubtedly the normal habit of the insect to make just such a cocoon as represented. Sometimes, however, it cuts two crescent shaped slits, and rolling up the two pieces, fastens them up in the middle as shown at Figure 3. And frequently it rolls over a piece of the edge of the leaf, in the manner commonly

[*Fig.* 3].

adopted by leaf-rolling larvæ, while we have had them spin up in a silk handkerchief, where they made no cut at all.

In two days after completing the cocoon, the worm changes to a chrysalis. In this state (Fig. 2 *a*), it measures about one-fifth of an inch, and is quite variable in color, being generally of a honey-yellow, with a green shade on the abdomen. In about ten days after this last change takes place, the chrysalis works itself almost entirely out of the cocoon, and the

little moth represented at Figure 1 *a*, makes its escape.

Mr. Riley, who prepared the cuts illustrating this insect, writes to us that it is, in all probability, like so many of our worst insect foes, an importation from Europe. It was first described in this country by Dr. A. S. Packard Jr., as *Penthina vitivorana*, but subsequently proved to be the European *Eudemis botrana*, W. V.; treated of in European works under the synonyms of *reliquana* and *vitisana*. He also says that, according to the observations of Dr. Hull, the second brood of worms make their cocoons under the sheltered places afforded by loose bark and stakes, and that they may be allured and destroyed by means of rags or other traps, as in the case of the apple worms

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RARE FOREIGN GRAPES.—*B., Augusta, Me.:* "Will you have the kindness to give me some more definite and reliable information concerning the following foreign grapes than can be found in the catalogues. I desire to know the American experience as to their *season*, *quality*, *productiveness*, and *health* in cold vineries, as compared with the Black Hamburg as a standard of excellence: Duc de Magenta, Golden Champion, Trentham Black, Golden Hamburgh, Muscat Hamburgh, Royal Ascot."

[Will some of our grape growers who have had the experience kindly respond.]

THE FATHER OF THE POSTAL SEED BUSINESS.—We cordially endorse the following by Mr. F. R. Elliott:

"I believe it is part and parcel of your life to give credit, in your public writings as well as in your private life, to men for the good they have done, or the item valuable they have inaugurated. Let me suggest, therefore, that when from the time the postal laws come up, you insert this, my belief, that B. K. Bliss, formerly of Springfield, Mass., now of New York, was the first to make a specialty, and so draw attention of the public to the value of transmission by mail at a cheap rate, of seeds, plants, etc. I think it well to keep these little items—if so we may call them, of men's acts, before the people, that during one's life they may see and know of the appreciation. Is it not better so than a record after death?"

HEDGE PLANT FOR THE SHADE.—*B, Augusta, Maine:* "Will any hedge plant do well under the shade of quite large trees? Most of our New England cities are well shaded with elms and maples, bordering the lots. A hedge running from tree to tree would be much shaded at the ends."

[No plants do *very* well under the shade of trees. Pyrus japonica and the Silver Thorn are the best.]

MUHLENBECKIA COMPLEXA.—*Dr. H. C. W., Mathawom, N. Y.* This is the name of the plant referred to by this correspondent: "Will you oblige me by naming the enclosed plant in your journal? It puzzles the gardeners here, and some in New York, Mr. Flemming included. It is a climbing perennial, and bears clusters of waxy white flowers, and I should judge it to be half hardy."

[In old catalogues it was known as a *Polygonum*. It is closely allied to this genus. It is a native of Australia. The flowers are not white but green, but after flowering, the green sepals become succulent and of a waxy white. This change always interests students in botany. In the centre of the waxy cup, is a triangular black seed, like buckwheat, which is also a Polygonum.]

PYRUS JAPONICA AS A HEDGE PLANT.—*B., Augusta, Maine*, asks: "What do you think of the *Pyrus Japonica* for an ornamental hedge? It is hardy with us as a shrub."

[One of the best hedge plants in the world for beauty and effectiveness. The only drawback is that it is too slow for fast people, requiring nearly double the time that most other hedge plants require.]

SWINDLERS.—We have received the following from *W. A. B., Zanesville, O.:* "As the swindling operations of men acting as tree agents are on the increase, I think it would be well if nurserymen would give such names publicity, and thus protect others. I warn all parties to keep clear of men traveling under the names of * * * * * * * * hailing from Sago, Ohio."

[We have striken out the names, but yet publish the letter, in order to add a word on this subject. We feel as heartily as any one—indeed we do not know but we have greater reasons in dollars and cents for the feeling than hundreds who read these lines—the want of some means of protection against horticultural swindlers,

but cannot make up our minds that the publication of names in the *Gardener's Monthly* is the proper way to reach the matter. Here in Pennsylvania, the law tells us it will take the whole responsibility of punishing criminals. It not only tells us how we are to proceed in criminal cases, but tells us it will punish us if we take the law into our own hands and punish the criminal. It says to us in effect, "you would have a pretty state of society if individuals are to be judge, jury and executioner." There is at the present time an editor in Philadelphia under sentence because he stated a fact in his paper, which the court decided ought to have been given in a court of justice, and not in a newspaper. It is not for us to question the wisdom of these laws, but as we know it is the law, we have to abide by it.

Now it seems to us the best way to guard against swindlers of this class is for the horticulturists of a neighborhood to do as farmers do against horse thieves—form an association to prosecute offenders. It is not fair that one or two men should have the burden in time and money of ridding a neighborhood of these swindlers. It is to the interest of the whole neigborhood that they should keep the place pure in its reputation. At Springfield, Ohio, for instance, there is a person flourishing who has for years been preying unmolested on the public, and the result is that the whole horticulture of Springfield suffers in public estimation. There is no doubt but the Springfieldians on the spot could catch the fellow if they had a mind to, but it is no *one* person's business, and so the whole have to suffer—an organization could do it.

Philadelphians have set some such an example. The wine plant men were once driving a good trade, but a few farmers combined to prosecute, and a conviction with six months in jail, for "selling as wine plants what they well knew were but rhubarb plants, with intent," and so forth—to get forty dollars per hundred for what was worth but five—completely broke up the "wine plant" trade.

With every desire to aid our friends in their fight with the swindlers, we do not see that we can aid them in the publication of names. In the co-operative plan of prosecution, we see the only chance.]

HEATING A PLANT CASE.—*Dr. H. C. W., Mathawom, N. Y.:* "Is there any device for heating an enclosed window garden? It is shut off from the room on account of coal gas, which makes it too cold for plants to thrive."

[In cases like this it is not unusual to heat a miniature boiler and pipes with a gas or lard oil jet. The gas light must of course be entirely secured from the plants, or the fumes will injure them. A pipe must bring fresh air from the outside of the case to feed the light, and another must convey the fumes away. In one case we have seen a simple "drum" heated in this way by a gas jet without any hot water arrangements, and it answered perfectly.]

SWEET AND SOUR APPLES.—A correspondent sends us an elaborate argument founded on "laws of vegetable physiology," from some paper he does not name, to account for the phenomena of sweet and sour apples on the same tree, or even in the same fruit. We have read it over and do not understand it. We doubt whether the writer of the paragraph understands it himself; and we doubt whether any one of our readers would make anything of it—and we have no room to merely "fill in a column." There is indeed no need of any theory of "blending of sap from scion with stock to account for it"—as the Rhode Island Greening, generally a sour apple in the Atlantic States, is nearly always, indeed so far as we can say from our own experience, is always sweet on the Pacific, "blending of blood" notwithstanding.

BOOK ON FLOWER CULTIVATION.—*P. B., New Castle, Pa.,* writes: "I wish to ask a favor of you. Is there such a book published in America or Europe as a botany on flowers, or "Floral Botany" in the English language? One that would be a great help to a young florist. I have Gray's Botany and Lessons, but it is not the book that I would like to have. I would like to have a work giving the name, description, picture of flower, and cultivation of all the different plants and flowers at present in cultivation. If you know of any such, you would greatly oblige me by giving me the name of the book, where it can be had, and the probable cost of the same, and oblige."

[There is no such work. Loudon's *Encyclopædia of Plants* is the nearest approach to it.]

ROCHESTER SEED FIRM.—*F. B., Corpusdristi, Texas.*—The person you refer to is Jas. Vick, Jr., one of the most honorable men in the seed trade.

NEW AND RARE PLANTS.

NEW JAPAN COCKSCOMB.—The old cockscomb is an universal favorite. It used to be one of the stock things which the gardeners of the old school loved to grow. The effort was to get them as dwarf as possible, and then the flower as long and wide as they could be induced to grow. Still it was simply a "show" plant. The flowers could not be cut or made much use of when taken from the parent plant. One magnificent head and that was all.

Japan, which has given us so many good things, now sends us a kind which is as handsome in color as the old kind, but divides itself

up into a large number of small bunches. This will allow of cutting if desirable without sacrificing the whole plant. The cockscomb is easily raised from seed, after the weather gets warm, but requires very rich soil to develop itself properly. To get the best results, a rather humid atmosphere is the best, and for this reason, although they are very beautiful in the open ground, they never are quite so fine as when grown in a hot-bed frame.

We observe in Carter's advertisements that it is known as *Celosia japonica*, but whether a distinct species or not from the old one we cannot say. Our illustration gives an idea of its branching character.

DOUBLE FLOWERED ZONALE GERANIUMS.—Mr. Jean Sisley, who has had such remarkable success in raising double zonale geraniums, is a wealthy amateur of Lyons, and one of the leading officers of the horticultural society of that great French city. Last year he was fortunate in producing a double white of a first-class character. A French nurseryman is now sending out a new set raised by Mr. Sisley last year. They are:

Aline Sisley, which is a white of the style of the single Madame Vaucher.

Asa Gray. This is after the fashion of Gloire de Corbery, and is said to have made a sensation at the Exposition Universelle of Lyons.

Charles Lyell. This has a coppery ground, and shaded on the edges to a white. "This color is the admiration of all the leading horticulturists who saw it at Mr. Sisley's."

Jeane Alegatiere. Brilliant rosy lilac. After the style of Victoire de Lyon.

Exposition de Lyon. A cherry magenta of great brilliancy, also after the style of Victoire de Lyon.

Last spring the French had in the market several other first class double geraniums which ought to be now ready for sale by our own florists. The best of these were Charles Darwin, Francois Arles Dufour, Emilio Castellar, Rose Pur, Deuil de Strasbourg, and Alba plena, which is, we note, advertised by Mr. Buist.

Jeane Alegatiere and *Exposition de Lyon* are not Mr. Sisley's seedlings.

Nothwithstanding the very low prices at which things are sold in France as compared with our country, and the large number of people who purchase novelties of this character, these new doubles sell there in large quantities at $2.50 each.

SILENE VIRGINICA.—For the introduction of this really beautiful plant we are indebted to the unwearied energies of the Messrs. Backhouse & Son, of York, who deserve the thanks of the horticultural world for their endeavors to popularize and foster the love for herbaceous plants amongst the rising generation of amateurs and gardeners. This Silene attains a height of from 1 to 2 feet. It is a native of the United States of America, and is familiarly known as the

"Fire Pink," from the brilliant appearance of its large, deep crimson flowers, which are produced throughout the months of June and July. To succeed well with this plant it must be placed in a somewhat shady situation, and the soil should consist of about two parts good leaf mould to one of light loam, with the addition of a small portion of sandy peat.—*Journal of Horticulture.*

OSMANTHUS ILICIFOLIUS.—This lovely shrub is not well known, although it cannot now be classed among the novelties. It deserves a note, for amateurs who take an interest in hardy shrubs may properly consider the world a blank so long as they are without it. In botany it is allied to the privets, in aspect it is allied to the hollies. But there is no green holly so elegant and lady-like as this osmanthus, and its leaves, which are of a rich green color and highly polished, suggest to a fanciful observer, not what a holly is, but what it ought to be. It grows fast, and makes a remarkably elegant dark green bush, distinct from every other evergreen in the garden, Shepherd's Holly included. As to hardiness there can be no doubt, for my plants have stood three years on a damp border of heavy clay under a wall which screens off the sun all the year round, except for an hour or so in the morning, from the beginning of May to the end of July. The variegated Osmanthus is, in my opinion, scarcely worth growing.—*Gardener's Magazine.*

THYMUS CITRIODORUS AUREUS MARGINATUS (Lemon-scented Gold-edged Thyme), raised by Fisher Holmes & Co.—An exceedingly pretty Thyme, of an erect-growing but much branched habit, with large obovate leaves, which are of a very bright dark green in the centre, and with a broad rich golden-yellow margined variegation; is very handsome and attractive. It will prove very affective for edging flower beds, borders, or riband planting, and for growing in masses on banks, or in other varied forms; it may be grown as bushes or pyramids for winter bedding, having proved perfectly hardy. Altogether, it may be considered as one of the most charming bedding plants known, and with the additional delicious fragrance of the sweet-scented Lemon Thyme.

It was exhibited at the Royal Horticultural Society on June 21, 1871, and received a first-class certificate; also at the Royal Horticultural Show at Nottingham, a first-class certificate.

DAHLIA EMPEROR FRANZ JOSEPH.—It is the grandest acquisition of a variegated foliage Dahlia ever introduced into this country. It is of a free growing and branching habit; foliage bright green, with a beautiful silver-white margin; grows about two to three feet high, and gives a most wonderful contrast when planted as an outline of a Dahlia group.

COLEUS CHAMELEON.—It is one of the finest new Coleus, of various colors, somewhat changeable, bletched, and margined with white, yellow, dark crimson, green, rose and magenta colors; strong habit and growth; good for bedding, and an admiration for the conservatory and greenhouse.

IRIS ITHERICA.—This rare and beautiful Iris has recently flowered in the collection of the Bellevue Nurseries, at Paterson, New Jersey. Mr. Chitty, the Superintendent, is very enthusiastic in getting together valuable, rare, and beautiful things.

DOMESTIC INTELLIGENCE.

THE JONATHAN APPLE SOUTH.—A Southern paper, we forget which, says of this variety: "It is really astonishing how slowly some of our best fruits are working their way into the favor of Southern fruit growers.

The Jonathan Apple is a marked illustration of the general distrust with which all Northern emanations are received, however much their intrinsic excellence may entitle them to our esteem. We have been practically acquainted with this variety for a quarter of a century in the South, and have studied its character closely as developed in other sections, and have yet to see or hear the first objection made to it as a fall and

early winter fruit. So far as a large and long experience goes, we believe it succeeds just as well in the South as it does in the West, and better than it does in New York where it originated. Of course it ripens earlier here, in September, or about the time of the Roxbury Russet, Hubbardson, Nonsuch and Taunton—and like the two first requires good soil and culture to bring out all its good qualities. One chief reason of its unpopularity no doubt is that in the nursery, the tree is a miserable grower—but in the orchard it makes a fine tree and bears large crops of sound, handsome, long keeping (after gathering) fruit, which for quality is excelled by no other variety with which we are acquainted."

THE FLORA OF COLORADO.—Captain W. W. Nevin, a distinguished member of the newspaper press of Philadelphia, thus writes of the flowers of the plains abutting the Rocky Mountains, near Colorado, Pike's Peak:

THE FLORA OF THE PRAIRIE,

which wantons in a bewildering brilliancy and a beautiful luxuriance, which recalls the efflorescence of the tropics. Whole acres of the golden coriander, the blue larkspur, the scarlet cactus, or the black and yellow sunflower, make the prairie gorgeous, and yet hormonize with each other as thoroughly and artistically as if some student of effects had planned their planting. Indeed, the plains often look like some garden planted to produce its effects by the massing of colors.

It is wonderful to see how every flower of home is reproduced here, and what are the new ones I cannot tell. The contributions of Colorado, however, to the national flora must be regal. The nameless beauties of hill and plain are countless. Several distinguished botanists have been making collections this summer, and their enthusiasm is boundless. Their stories of new discoveries I shall not imperil my character for veracity by repeating.

I cannot give any better idea of the floral wealth and luxuriance of this country than by making a list of the flowers gathered yesterday evening in a single walk by two or three of us, none of whom were professional, or even amateur botanists, and whose pleasant labors were therefore, by no means exhaustive of the field. All these flowers, I must repeat, grow within half a mile of our hotel, which is a specially favored spot, it is true, in the way of beauty, being situated just where the prairies roll up and break against the foothills of the mountains. There are here in profusion wild roses, the wild clematis, wild heliotrope, violets, blue gentian, the wild jessamine, cacti, pale pink in single flowers, and again flaming in huge piles like burning bushes, strawberries, wild bergamot, the larkspur in every variety and shade, pertulaccas in profusion, the brilliant coriander, daisies, buttercups, forget-me-nots, prairie pinks, sunflowers, poppies, tiger lilies, the graceful eglatine, wild geraniums, beautiful in the grace of leaf and flower, the statuesque yucca, chaste and stately; a brilliant scarlet flower of peculiar grace, drooping and lovely, known as a cypress, the real blue bell of Scotland (campagnola), ferns, primroses, verbenas, foxglove, four-o'-clocks, the fresh brilliant morning glories (convolvulus), wild cherries, Missouri currants, gooseberries, the widow's tear—that rustic sarcasm—the sweet columbine, the white-fringed spirea, and the queenly fleur-de-lis (iris). All these are the glories and pride of the Springs, to say nothing of the fairer flowers which pay eighteen dollars a week for the privilege of blooming on the piazzas and adorning the croquet grounds.

It must be borne in mind, too, that many of these flowers are repeated in an infinite variety of shade and species, and that some of them, as the rose and ferns, represent whole families. And this wealth of beauty covers the whole Territory—whether it be plain, prairie, mountain, or park country. Sometimes you can ride for days over rolling hill and grazing land, richly and brilliantly carpeted as far as the eye can reach with ever-changing hues. When swept by the winds the fields often seem to tremble as under a kaleidoscopic shower of color.

Nor is the vegetable wealth of Colorado merely ornamental. Currants and gooseberries and strawberries grow everywhere wild, as do also grapes of many varieties. Professor T. C. Porter, recognized authority on botany, has discovered near Canon City three distinct varieties of indigenous potatoes, and he, in common with every student of the natural sciences, is in rapture over the bounteous promise of this land.

It is worth while knowing who are enjoying all this waste of beauty.

THE FAVORED GUESTS

of this first great Western reception of Flora held at these Springs of Colorado, curiously enough, came this year from two or three main

localities. Of these Philadelphia leads, Pittsburg comes next, and then Chicago. This from the East. Of course, nearly one-half of the transient visitors come from the West itself, *i.e.*, west of the Missouri river. These guests generally come bringing their own equipage, menage, and servants, and camp out in tents. Their neat domestic encampments—their brilliant little bivouacs—their parked trains and horses, tethered by the guardian lariat, relieve the prosaic details of hotel life, and lend the pleasing charm of novelty to the scene.

FOREIGN CORRESPONDENCE.

HORTICULTURAL OBSERVATIONS IN ENGLAND, No. 3.

Newton Abbot, Devonshire.

I cannot refrain from adding my testimony to others, of the geniality of the climate, the salubrity of the atmosphere, the fertility of the soil, and the beauty and variety of the scenery in this part of England. The crop of grain just harvested has been more than an average one, and for three weeks during the time they were getting it in, there was not a shower of rain. In some places two good crops of grass have been cut off the same meadows, consequently hay will be reasonable in price the coming winter. We hear complaints all the time of the potato-rot. There are a good many diseased, but on high land there are pretty good crops—price in the market this week, twenty-eight cents per twenty lbs.

The "American Rose" is becoming a favorite here—scarcely any rot amongst them. Read a report from a grower yesterday, who from three lbs. of seed, dug eighty lbs. Those that have them are keeping them for seed.

There are also in this district some very fine crops of ruta baga and mangel wurzel. The favorite variety of the latter grown is the "Champion Orange Globe." The many agricultural, horticultural and cottage garden exhibitions held here, tend materially to foster a taste and excite a generous rivalry among the people. Premiums are offered for the best kept flower and kitchen gardens. Competent judges go round and examime them a few days before the show, and you would be surprised and pleased to see how skilfully some of them are laid out, planted and kept. They would do credit to any professional gardener.

The little flower gardens at the various railroad stations are also a pleasing feature. At this station there is a small greenhouse for propagating and keeping the plants in winter. On a sloping green bank, are seventeen beds cut in the turf, filled with scarlet and var. Pelargoniums, Calceolarias, Lobellas, Fuchsias, Ageratums, &c., and scattered between the beds are forty-five standard roses, many of them now in full bloom. Trained on a fence at the back are various climbers. Across the way, in a nursery, is a regal plant of the Pampas Grass, (Gynerium). Over fifty spikes of its beautiful, graceful silvery plumes are out now.

Fernmouth is a pretty little place—a favorite resort for *health seekers* and bathers. A flower show was held here a few weeks ago, which was well patronized. The plants were exhibited in tents on a lawn facing the sea. There was a fine collection of scarlet and variegated Pelargoniums. Two of the best in the *bronze* section were A. H. Wills and Sultan. Three of the best in the tricolors, Sophia Dumaresque, Sir R Napier and Lady Callam. The best silver leaf, Almo; an extra fine pink variety with white eye, (Rose Rendatler) a splendid trusser. The Fuchsias were fine, also the Ferns; among the latter, Adiantum concinnum, three feet through; do. A. Farleyense, nearly as large; Neottopteris australacia, (fine); Lomaria gibba, a noble plant of Caladium, Prince Albert Edward, veined and marked with crimson; also C. Chantinii; Scuttellaria macciniana, is a showy plant, scarlet tube and upper lip, lower lip yellow; Croton longifolia, and two noble specimens of C. picta, Allamanda Hendersoni, Yucca aliæfolia variegata, Æschynanthus refulgens; also a very fine plant, well flowered, of Lapageria rosea.

The show of fruit was nothing extra, excepting Cherries and some fine specimens of Necta-

rines and Gross Mignonne Peaches. A good show of Potatoes—among them Breeze's Prolific, do. Peerless. Best Cabbage, Enfield Market and Sutton's Imperial—the latter particularly fine.

A fine collection of Roses from Messrs. Carter & Co.'s nursery, at Torquoy. This firm, I find, carries away the palm in this part of the country. They had a fine seedling, "Bessie Johnston," on exhibition, which will be quite an acquisition to rose fanciers; also, John Hopper, Leilia, Reine de Blanche, Duke of Wellington, fine dark, Alfred Colomb, Madame Rothschild, Zavier Pluto, Charles Lefevre and Pierre Nolling, good, and the finest box, thirty-six blooms, of Marechal Niel I ever saw.

I have seen some very fine Dahlias in various places. The following are some of the best, ranging in colors from white to black: Redan, Formosa, Admiration, Prince of Wales, Leah, Peri, Mephistopheles, Criterion, Monarch, (splendid dark), Goldendrop, Julia Wigalt.

Passed through Powderham Park the other day, the seat of Earl Devon, eleven miles from here. The castle is situate on elevated ground, near the centre of the park, which is ten miles in circumference, and contains some magnificent specimens of forest trees, evergreens, &c. I thought the Elms in New Haven and the Connecticut valley were grand, but these surpass them. One English Oak, whose branches touched the ground, I measured the outer circumference seventy yards, an Elm over eighty do.; also a grand old cork barked oak, a Cryptomeria perfect in shape, fifty feet high, circumference eighty-one feet. Trained up on the mansion walls were Magnolia grandiflora, covered with buds and bloom right up to the roof; Eugenia myrtifolia, Lemon Verbena, Oleanders, Lamarque Roses. Right in front a large geometrical flower garden brimful of flowers, with perfect specimens of Irish Yews, fifteen and twenty feet high—one Auracaria imbricata, eight feet round the stem; also some fine Sequoia gigantea, over twenty feet high, Cupressus macrocarpa, &c.

On an eminence near the castle, is a triangular tower called the Belvidere, seventy-five feet high; from the summit you have a grand panoramic view of the country for miles around, including Exeter, (only six miles off), with its famed cathedral, the river Exe, villages, hamlets, &c. This noble estate I believe has been in the Devon family for many centuries.

J. W. W.

HORTICULTURAL NOTICES.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES.

At the meeting of the Academy on February 18th, Mr. Thomas Meehan said that as was well known, the Violet and the Balsam, (Impatiens), produced two distinct form of flowers—one with a corolla and the other without, and the former producing the last class underground. It was remarkable that these secretly produced (cleistogenous) flowers, in which there was no opportunity for anything but self fertilization, should be more fertile than those which had the most abundant opportunities of aid from wind, insects, and other favoring influences.

The Catalonian Jasmine of our greenhouses, was another illustration of this phenomenon. He had observed, and no doubt others had often done the same for many years past, that there was a great tendency to a supposed abortion of the flowers in this plant. But this year he had some plants which failed to produce a single perfect flower. To his astonishment, these plants were covered with developing seed vessels, while in the plants producing perfect flowers there was no sign of any such tendency. On examining these imperfect flowers, he found a miniature corolla was formed, but so closely twisted together that it could not open, and always remained inside the calyx segments. The pistils in these flowers were differently formed from those in the perfect flowers. The last have the two segments of the divided pistil coiled in spiral manner—the former has no appearance of any division, but seem united into a small cone. In many cases the style was somewhat flattened, and there appeared to be a stigmatic surface along each edge. It appeared from his examination that there was very little pollen in the anthers of these flowers, and the apex of the pistil was pushed beyond them, and the idea occurred to him that possibly fertilization might occur along the apparent stigmatic surface referred to.

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HINTS FOR MAY.

FLOWER GARDEN AND PLEASURE GROUND.

Flowers in pots and tubs, for adorning roads and gardens, now spring like lovely butterflies from their winter's hiding places. Cellars give forth their treasures, and barns, pits and greenhouses bring forth their lovely things each after its kind.

This branch of gardening has not been enough valued. There are many things which do not well endure our winter, that are truly beautiful when a little protection is afforded them; but because they are only half hardy, are not grown at all. The following are well worthy of being grown in this way:

Magnolia fuscata, Pittosporums, Clerodendron Bungei, Hydrangea, Figs, Oleander, pink and white; Pomegranate, single for fruit and double for show; Bignonia Capenses, Bouvardia triphylla, Oranges, Lemons, Laurel, Bay, Laurustinus, New Zealand flax, Mahonias, particularly M. Darwinii, Euonymus japonicus, Aloes, Agaves, and others. In very cold climates, Peaches, Nectarines, Apricots and Plums might be grown in this way, and would not only charm the eye during the flowering season, but add their mite to more material pleasure, in a way agreeable to most persons of taste, if not of refinement.

Flower-gardening, as we have often said before, affords scope for many pretty fancies, besides arrangement of color, which, in the hands of a person of taste, render a garden a paradise of enchantment. Borders and edgings of Ivy, Periwinkle or variegated plants, may be made to appear as frames to the pictures of pretty flowers enclosed by them. Waves and fringes of green may be led along through a large flower-bed, and the various divisions formed be filled with its own color, making a natural and living bouquet; different colored gravels may be chosen for paths between beds; different shades of green may be made by the selection of grasses of different hues, where grass walks are employed. Old stumps or roots may be occasionally introduced in the centre of beds, and covered with green vines, or flowering climbers, as taste may dictate; rustic baskets and vases, and even in many instances where artificial styles prevail, the topiary art may be called in, and good effects result from the use of the knife and shears on certain plants.

To grow flowers well fresh soil is very important. Have a care that the roots of neighboring trees do not get into the bed; they rob it and dry it, and the flowers dwindle and die. If beds are near trees, go round the bed once a year with a spade and cut of all the roots that may have strayed into the bed. This is very important in beds of evergreen shrubs, like *Mahonias*, *Euonymus* and *Rhododendrons*, which like shade, but not dry, impoverished soil.

Leaf mould is good for flowers if two or three years old, and very much decayed; when but half rotten it is an injury. Rotten sod is the best soil for flowers, and cow manure, which has lain two years to rot, the best fertilizer. Where rotten sod is not easily obtained, the edging parings of walks may be preserved in a heap for flower purposes.

In planting out flowers don't take them at once from the hot house to the open ground, set the pots out for a few days in a cold frame, with plenty of air, or under a tree in a sheltered place.

Before turning them out of pots, water; and when set in the earth, press the soil very hard about the flower roots. If the ground be dry, the earth cannot be pressed too hard.

Don't make the beds very high, or the rains in summer will run off too rapidly. After smoothing the surface peg down the plants as much as possible so as to cover the surface soon. The plants also push out side shoots easier. Where small twigs can be had, split and double them like hair pins, for pegging down; where these are not at hand, small pieces of bast mat or twine, doubled and dibbled in the earth by the ends, make very fine pegs.

In this climate, hothouse plants often make noble bedders. The Chinese rose Hibiscus, is a first class thing, making a gorgeous show all summer. The Geranium also, is getting immensely popular. The tree Carnation is also in much request. The Madagascar Periwinkle, rose and white, is also now often seen in beds and masses.

Climbing plants grow faster on trellis than if left to themselves; stick them in as soon as the climbers are set out.

Tuberoses, Gladiolus, Tigridias, Dahlias, and other bulbous things which cannot be put out till the ground gets warm, ought not to be kept out of the earth any longer than necessary. It was once supposed they thrive best in poor soil —an error; they love rich food.

Mow lawns very early the first mowing, or at every subsequent mowing, the lawn will look brown. A thin sprinkling of salt is good for the lawn, just enough salt to see the grains on the surface, about a quarter of an inch apart. An overdose will destroy the grass. Frequent rolling is one of the best ways to get a good close sod. When coarse weeds get in the lawn, hand weeding is the best remedy.

FRUIT GARDEN.

In this part of the world the Black Knot on the Plum and Cherry commences to work in May. A mere sappy abrasure, green and spongy, first appears above the bark; cut it out and burn as fast as it appears, It is no use to cut it out after a month old. Fire blight in the pear, and many other diseases of fungoid origin may be kept down by watching for their first appearance and cutting away, or by using a lime and sulphur wash, as recommended by Mr. Saunders.

Watch all young fruit trees against bearing too abundantly while young, and the first season after planting. There can be no objection to the ripening of one or two fruits on a tree the first season of setting out, in order to test the kind, or to administer to curiosity, if the tree be otherwise growing freely. If little growth is making, no fruit at all should be permitted. It is a better practice to disbud or take out soon after shooting all shoots that are needless to the perfect shape of the tree, than to wait till fall or winter. The pruning knife need then only be used to shorten a branch in to where several branches are desired to push, or to induce a more vigorous growth from the pruned parts. In the gooseberry, raspberry and strawberry also, no more shoots should be suffered to grow than will be required to bear the next season.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruit. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat—it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

In summer pruning or dis-budding, it is also worth while to watch for shoots pushing stronger than others, and always take them out. This is the only way that shoots of equal strength can be encouraged in every part of the tree. This is particularly true of grape vines. If a shoot once get the start of the others in strength and vigor, the others will gradually get weaker to the other's increasing luxuriance.

We gave in a former volume the pith of what we considered the philosophy of vine pruning, and as we have not yet seen anything to add to or take from what we then expressed, we reproduce the remarks here.

As to the best system of pruning grapes, there are several "schools," all contending that their views are "decidedly best." In such cases, we have generally found there is much to admire in them all—situations and peculiar circumstances deciding the point in each individual instance.

There are a few points incontrovertible to insure success, and it matters little what system of pruning is followed so that they are secured. First, a healthy set of roots of the previous year's growth is essential to produce vigorous start of growth the year following. Secondly, after starting, these roots can only be kept vigorous by encouraging an abundance of healthy foliage, to be retained on the vine as long as possible. Thirdly, the leaves of the first growth are at least of double the value to the plant than those from secondary or lateral shoots, they should, therefore, be carefully guarded from injury. Fourthly, checking the strong growing-shoots strengthens the weaker ones, equalizes the flow of sap to every part of the vine, and insures regular and harmonious action between all the parts. Any system that secures this, does all that is necessary for the general health and vigor of the vine; and where some special objects are desirable, such as dwarfing, particularly early bearing, productiveness at the expense of longevity, special means must be employed to bring them about.

VEGETABLE GARDEN.

In the cultivation of garden crops, the hoe and rake should be kept continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Cabbage, Cauliflower and Brocoli, are now set out for fall crops, and Endive sown for winter salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, Beans, and other crops should be sowed every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, Cucumbers, Corn, Okra, Squash, Beans, Sweet Potatoes, Lima Beans, Pepper, Egg-plants, Tomatoes, and other tender vegetables that do well till the sun gets high, and the ground warm, should go into the soil without delay.

Bean poles should be set before the beans are planted; and near cities where they are comparative high priced, their ends should be charred. This will make them last some years. Try also short stout poles for cucumbers and tomatoes. They do remarkably well this way.

COMMUNICATIONS.

STRAWBERRY CULTURE IN OHIO.

BY M. B. BATEHAM, PAINESVILLE.

The extraordinary cold weather of December and January destroyed nearly all the chances for any crops of raspberries, blackberries and cherries, except Morrellos, in most parts of Ohio, and doubtless in several adjacent States. Strawberry plants were generally so protected by snow as to escape serious injury, hence this fruit will be almost the sole reliance of our people for the first part of summer, with little else but currants to follow until apples and grapes appear, as peaches of course are out of the question. It is therefore quite certain that strawberries will be regarded as more of a luxury, and bring higher prices in our markets than for several years past, and as a consequence, a fresh impetus will be given to the culture of this fruit. Then, too, the old question will be discussed by the growers: *What varieties shall we plant?*

I think it will be admitted that Ohio has done as much as any other State in the production of new and fine varieties of strawberries, and in teaching the best modes of culture. Still it is true here, as elsewhere, that in spite of all the progress that has been made in the matter of varieties, the old *Wilson*, with its admitted inferior quality, is yet the staple supply of our markets, and the sole kind in a majority of private gardens. Like the Concord among grapes,

it is regarded as the berry "for the million," because it is of the easiest culture and the surest to produce a crop.

At the same time, it is true that with the growth of our cities in population and wealth, and the increase of intelligence about fruits among the people, there is more discrimination made by the buyers in regard to quality, and better prices than formerly are obtained for superior fruits, so that the growers are finding it for their interests to plant the best varieties and give them the best of culture, and then send the fruit to market in the best manner. This was the lesson so plainly taught and so clearly demonstrated by our lamented friend, the late J. Knox, of Pittsburgh, whom we claimed as an Ohioan, though of late years he lived over the border of our State. His motto, as everybody knows, was plant the *best* varieties on the *best* soil and give the *best* of culture, then you will obtain the *best* prices, and find the highest satisfaction in the business of fruit growing. Many of the strawberry growers of this country owe more than they are aware of to the teachings of Mr. Knox. Let us keep his memory green, for we have not many such wise and genial teachers.

The best school of strawberry culture in our State, for several years past, has been the grounds of Mr. Louis Ritz, of Plainville, near Cincinnati. For a dozen or more years, Mr. R. has been engaged in collecting all the approved varieties of this fruit that he could find or hear of, in this country and in Europe, then testing them in his grounds with different modes of culture. He has also experimented largely in growing new varieties from seed, and although the required standard of excellence is now so high, it is the opinion of experienced judges that he has two or three varieties which have now been five or six years on trial, that give promise of much value. The finest of these has been named *Dr. Warder*, in compliment of the worthy President of our State Horticultural Society. At the late annual meeting of this society, Mr. Ritz, by request, read an essay on small fruits, which was of considerable interest.

ON VARIETIES OF STRAWBERRIES.

BY LOUIS RITZ.

What varieties to plant will depend on your soil and your market; for distant shipment the list is very limited, while for home markets there are many sorts that will, with fair treatment, make ample returns. It is best not to rely on any one kind, however good it may be, as one is not always able to command a sufficient number of pickers, or your markets may be glutted just at the time the bulk of your crop comes in.

For distant shipment, we have for earliest the *Princess of Wales*, which ripens a few days after the Downer's Prolific; it is firm, large, showy and of excellent flavor, though of foreign origin, it grows on the hill system, in a well enriched, heavy clay soil; strong and vigorous, is quite productive, and commands a very high price in market, as it has to compete only with soft berries. But I would not advise its planting, except where good culture is given; and I may mention here, that foreign varieties will do better if annually renewed, a plan that is generally adopted on the continent, and I incline to think that our native sorts would likewise yield better returns, if this plan was adopted.

Next we have the *Wilson* and *Seth Boyden*, maturing about medium season, both very productive on the matted row plan; the former yielding a larger amount of fruit, the latter, however, commanding a much higher price in market. The Seth Boyden is not reliable in light and sandy soil. Mr. Wm. Parry, of New Jersey, informs me that in 1871, the Seth Boyden surpassed any strawberry crop he ever raised; very perfect, large and productive. But this year he had ten acres of light, sandy soil in strawberries, all of which looked well until the fruit began to form, when the severe draught set in and the Seth Boyden suffered most, the Chas. Downing least, while Wilson and Kentucky were only moderate crops. The Seth Boyden in my grounds has always given satisfaction, neither suffering from extreme heat nor cold. Mr. Samuel Miller, of Missouri, and others attest to the same fact, and say it is with them all that is desirable in a strawberry.

For late market there is the *Jucunda*, wherever it does well, as in Belmont county and some other localities in this State, and the *Triomphe de Gand*, both requiring hill culture; the latter in compact, rich soil, well mulched, being one of the best paying varieties.

For home markets there are besides the *Nicanor*, which grown broadcast, is of no account, but cultivated in hills, yields a very early and large crop. I picked one season from 500 stools, 830 quarts. Berries are rather above medium size, and of a peculiar, to most palates, very pleasant flavor.

Burr's New Pine. A great bearer, in matted rows, annually renewed ; its fine light color and excellent flavor, make it a favorite everywhere, and it will bring in Cincinnati twice as much as the Wilson, if the berries have been properly handled.

Charles Downing. Another large, bright red and regular shaped berry, having made many friends during the last two years ; will only do well in stools, but yields then heavily ; rich sandy loam is its favorite soil, and Mr. Parry considers it his second best berry.

Lady of the Lake. An old favorite of mine, and worthy of more attention than it has thus far received, as it seems to stand neglect even better than the Wilson. Mr. Scott, of Massachusetts, for the last thirty years the most extensive strawberry grower in the New England States, has informed me that the Lady of the Lake yields with him 40 or 50 bushels more per acre than the Wilson, or about 200 bushels actual count, which averaged him $9.50 in Boston market.

Fillmore, which Mr. Knox used to style his second best berry, has to be kept in stools, and gives in strong, rich loam, an abundant crop of large berries.

Agriculturist does not succeed everywhere, but should be grown where it does.

Green Prolific. Yielding in hills a very large crop. It has averaged with me, some seasons, two quarts to the stool, and is, on account of its color, very saleable in market. It is the only variety which will live and give satisfaction in the warm, sandy soil of our Miami bottoms, where neither the Wilson nor any other sort ever outlived a single season ; it will, no doubt, do as well in other similar localities.

Kentucky, which, in matted rows, hill or broadcast, seems to do equally well ; and in appearance, size and flavor, a most excellent berry. I picked this season from a bed of 1200 feet, plants covering the bed, which had not been worked or manured for three years, over four bushels of the largest berries.

These varieties are named in the order of their maturity, commencing with the earliest. Some of them will of course, do better in one locality than another, and every grower has to find out by experiments on a small scale, which are the best for his own region or soil, taking always in consideration that the largest berries of a bright red color sell best. Whoever has the great desideratum of the strawberry vine, a well drained, rich deep, and above all, a moist soil, can grow any variety to perfection.

Most of the varieties named will do equally well for the home garden. Lovers of fine fruit, however, should not do without the *Lennig's White* or the *President Wilder*, and for the epicure, who does not mind time, labor or cost, there are numerous other sorts, combining the highest standard of excellence, size and flavor.

But my list of varieties would be incomplete without mentioning the *Ida* and the *General Meade*, and more particularly the first. Mother earth seems to grow them spontaneously for those of her favorites who like to reap without sowing. Let those who are afflicted with this failing, try the Ida. Plant it close enough for the runners to cover the ground the first season, and they will afterwards take care of the weeds themselves.

And now a few words about new seedling varieties, some of which promise a bright future :

1. The *Col. Cheeney* I saw for the first time in fruit last summer at Barnesville, in what I consider one of the regions best adapted to small fruit culture in our State, of which fact our Belmont county friends, I am happy to add, seem to be fully aware. The berries on exhibition were extremely large, of fine showy appearance, fair taste, but rather soft. In productiveness the Col. Cheeney appears to rival the far-famed Mr. Nicaise, as the berries were few and far between—it certainly took a good many plants to fill a few quarts. I suppose the plant to be pistilate, as by far the larger number of berries were small and of no account.

2. *Black Defiance.* Raised by Mr. Durand from the Green Prolific and Triumph. It is a strong, healthy grower, and seems to have many good qualities, but with me the fruit stems are so short that the berries cannot be kept clean ; this, however, may be a defect in the soil, as it is highly spoken of in the Eastern States.

3. *Monarch of the West.* Plant very strong and healthy, fruit large and handsome. I learn from Mr. Wm. Parry, that it is the largest and finest strawberry he has ; foliage remarkably strong and vigorous, standing the past hot and dry summer without injury, when the Wilson and other sorts were nearly ruined. The fruit is firm, delicious and handsome, selling at $1 per quart in Philadelphia, when the Wilson sold at twenty-five cents.

4. *Matilda.* A seedling from Triomphe de

Gand; a large, handsome, strawberry, firm and quite productive. Mr. A. S. Fuller recommended it as a market berry, though deficient in flavor, while Mr. Charles Downing, who has repeatedly visited the original plantation, speaks very highly of it, and says that the Matilda (according to his taste) will class very good or best. The berries sell about one-third higher than Wilson's, while there is only a little difference in the yield.

5. And last, but not least, the *Dr. Warders.* If this berry will show during the next six years as bright a record as it has through the past, (and I have no doubt it will), then it cannot fail to occupy as prominent a position among strawberries, as its godfather, our noble president, so deservedly occupies amongst horticulturists. In another year we will hear more from it, as it is being largely planted in New Jersey, Missouri, Kentucky and other States for market purposes.

The actual yield with me of 200 feet on the matted row plan, without winter covering or manure, was two bushels and twelve quarts of such berries as I exhibited here in Zanesville and other localities, without counting what was taken off by visitors.

To show the relative value of strawberries in market, I may mention that the following varieties ranged on the same day in Cincinnati at

50 cents for Jucunda.

40 cents for Triomphe de Gand and Seth Boyden.

30 to 35 cents for Kentucky and Agriculturist.

20 cents for Charles Downing.

10 to 15 cents for Wilson's Albany.

TAR ON HOTHOUSE AND GREENHOUSE STAGING.

BY W. BENNETT, GARDENER TO G. BREWER, ESQ., NEWPORT, R. I.

Eighteen months ago my employer built three ranges of houses here, and being advised to tar the stages to preserve the wood, to our misfortune it was all well tarred; two span roof houses, the wood work all being tarred before fixed. As soon as the houses were filled in with plants, and we commenced firing, we soon found out the dangerous effects of tar. The plants began to look sickly, the leaves became blackened and dropped off; consequently the whole of the stages was removed—every particle that had tar on, and replaced by new. I then filled these two houses again with a general collection of stove plants and orchids, &c., when they soon began to make new leaves and assume an healthy appearances.

The other range, which is a hothouse and greenhouse, the staging all being fixed before it was tarred, consequently the man when putting the tar on the staging, spilt a quantity on the pipes. Now after having the whole of the staging removed from these two houses, and putting new staging in, we feel the evil effects of the tar as soon as the pipes become heated. Last fall all the leaves come off in two or three nights, both in the hothouse and greenhouse, and the plants had to be cleared out again, and the few common plants I left in during the wintor are nearly dead.

The following plants are what suffered most:

GREENHOUSE PLANTS.

Acacias,	Boronias,
Camellias,	Adenandras,
Aphelexis,	Pimelias,
Hederomas,	Diosmas,
Tremandras,	Dracophyllum,
Chorizemas,	Croweas,
Correas,	Taxonias,
Myrtles,	Oranges,
Ericas,	Polygalas,

Kennedyas, and a host of others.

STOVE PLANTS.

Marantas,	Pandanus,
Crotons,	Dipladineas,
Clerodendrons,	Ixoras,
Cyanophyllums,	Allamandas,
Dieffenbachias,	Francisceas,
Stephanotes,	Palms—some varieties nearly killed.
Anthureums,	Eucharas, &c.

Last winter I moved some Vandas into the stove, on account of being more heat there than in some of the other houses, which were showing flower spikes; to my surprise, in three days the flower spikes turned black and withered away. Cypripediums and Cattleyas, Oncidiums, Aerides, Saccolabiums, Phalœnopsis, all lost their leaves in that house, and would have died had I let them remain there. For instance, an old plant of Justicia carnea, which has been in the house all the winter, continually keeps dropping off at the joints, and I believe the plant will be quite dead by the spring.

Now we are quite sure the tar is the cause of all our trouble, and unless we can remove the evil, we shall never have a healthy plant in these two houses. For instance, a plant not only

requires its roots and stem, but its leaves to perform its functions; but strip a plant entirely of its leaves, and its vital actions for the time cease. In my opinion, tar is dangerous to plant life; however, I have found it so here. I should be pleased to hear from some of your correspondents if there is any remedy for removing the tar from the pipes.

NOTE ON CELOSIA JAPONICA.

BY MRS. F.

A subscriber to the *Gardener's Monthly*, who saw at the floral exhibition of the Western New York Fair last fall, the new Japan Cockscomb, *Celosia Japonica*, which is being introduced this season by Mr. James Vick, of Rochester, N. Y., writes to the editor as follows:

As regards the beauty of this novelty, it must be seen to be fully appreciated. Imagine a plant growing from two to three feet high, very branching; the stalks of which are of a bright scarlet or crimson, and every branch, however small, terminating in a comb, or rather a cluster, consisting of an immense number of combs, having the appearance of the finest scarlet or crimson silk velvet; ruffled and crimped into large heads in a most delicate and beautiful manner.

The foliage is also very fine, being of a dark, changeable crimson, green and bronze, which in sunlight gives to the plant a most splendid appearance. This certainly is no "*Sport*," but a true and distinct variety, entirely new, and altogether different in habit from the old varieties.

LAELIA ANCEPS.—No. 9.

BY MR. JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

This is a very desirable plant for any collection of Orchideæ; in fact it is frequently grown by those who grow but few other varieties of choice plants, it being one of the species which is easily grown by any one possessing a greenhouse for winter flowering plants. This being a Mexican species, does not require a strong heat, but would in time be so much weakened by a high temperature that few or no flowers would be obtained.

This plant may be grown either in a pot, basket, or on a block, but the pot or basket is the best in this climate. We grow the plants in frame, three parts filled with broken pots, and the remainder filled with the fibre of orchard peat, keeping the plants in a night temperature of from 50° to 55° in the winter, and place them in a open greenhouse with air day and night in summer, shade from bright sun during the heated weather, and expose to full light in autumn.

The plants flower from December to January, and last in flower more than a month, so that it flowers at a very desirable season, when choice flowers are scarce and always in request. The flowers are about four inches across; beautiful, very lilac and deep purple. It lasts for a long time when cut and placed in water in a moderate heated room.

RURAL IMPROVEMENTS.

BY WALTER ELDER.

Nothwithstanding the many books published upon the culture of fruits and vegetables, our horticultural magazines are mostly taken up with things to *eat;* their foreign readers will think that "we Yankees" are awful people for "stuffing our kites."

The love for the beautiful and fragrant in ornamental gardening is fast spreading among our wealthy citizens. Almost every family wishes for a rural retreat of their own, so as to improve it to suit their fancies. Our seedsmen, florists and nurserymen are using their best endeavors to further their desires. It is astonishing to see the numerous new species and improved varieties of annuals, biennials and perennials of great beauty and delightful fragrance.

The same is the case with ornamental trees and shrubbery. The great increase and surpassing beauty of ornamental vines is also very encouraging. Those having rural estates to improve, need only to visit our commercial gardens and examine the various stocks therein, to choose suitable plants for their embellishment. But in planning and directing the improvements, we quote a sentence from the Philadelphia *Public Ledger: "It is necessary to have a man who understands the business." Such a man will represent himself, and not carry bundles of script to tell what he can do; nor will he ride upon other people's shoulders to get up in the world.*

We earnestly beseech all our commercial gardeners to *encourage* rural improvements, rather than *discourage* them, in commending suitable men to direct the works, independent of their "being regular customers." No man can buy all he needs from each individual dealer. A

man's *qualifications* should be the *mark*—his doings will be sure to bring trade to the firm. He may save ten times the amount of the price of his hire in his direction. He will make selections of nursery stocks as will flourish upon the soil and exposure of the place, and will set them out in a way to insure their thrifty growth, and give the most pleasing effect. Every place will require a plan to suit itself. A pleasing diversity can be made upon very small grounds. Evergreen hedges make the most beautiful and lasting enclosures for small grounds. Perhaps some large grounds may be belted with trees, many of them being evergreens for winter shelter, and to shut out the vulgar stare.

Several species of fruit trees are highly ornamental upon a fine lawn. The Cherry, Pear, Peach, American and Spanish Chestnut trees, &c., are all beautiful, and their fruits valuable. The number of individual species and varieties of deciduous trees and shrubs are vast, and their diversity surprising; so it is with flowering plants, their splendors are dazzling, and their sweet perfumes are charming. Our rural and suburban improvements have made rapid strides within the past twenty years, and I feel assured that the ensuing twenty years will quadruple the past in the extent and gorgeousness of their improvements.

PRUNING IN JUNE.

BY L. J. TEMPLIN, KOKOMA, IND.

I have become so much accustomed to accepting the teachings of the *Gardener's Monthly*, as sound doctrine, that I feel somewhat surprised to feel compelled to dissent from anything found in it. But I find I sometimes have to disagree with those who are my best friends, and who are also competent to teach me on almost all subjects. The spirit that pervades the pages of the *Gardener's Monthly*, both editorial and com municated, assures me that any effort to either discover or communicate truth, will be not only tolerated, but encouraged.

In an article on tree culture, in the February number of your magazine, I find among some very good things, that we should do well to take heed to a fling at pruning fruit trees in June, as a theory fit only for boys who are full of faith in what they see in print. Now I believe that aith, even when found existing in boyhood, is a good thing, and departing from the faith of childhood has led many a man to his ruin; but fortunately or otherwise, I had no faith on the subject of tree pruning till after boyhood had fled forever, as my thoughts and studies all led to different fields of knowledge, and when I was led to investigate the subject of tree culture, I first became prejudiced in favor of winter and early spring pruning, and it was only after several years of both study and practice that I became convinced that for certain purposes in pruning, June is the best possible season of the year.

I presume that everybody will agree that a single fact is hardly sufficient to either establish or overthrow a general principle. Mr. H.'s experiment in pruning in June does not necessarily prove that it is folly to prune at that season. The trees may have been in bad health, or some other unknown cause may have produced the evil.

In the fall of 1865 I pruned a young orchard in the month of November. The previous summer had been one of excessive wet; the following winter was a very cold one. The weather up to the time of pruning, and for some time after, was mild and fine, but the result was that a large number of the trees died, and the trunks of those that survived were generally as black as tar, below the wounds made in pruning. Now I do not think it was the season altogether that produced all this evil, but think perhaps it was caused by a combination of unfavorable influences with which I was at that time unacquainted. For seven years past I have pruned somewhat extensively, both in orchards and nursery, and have observed with considerable of interest the experience of others, and have arrived at the following conclusions:

1st. If the design is to increase the vigor of a tree and produce a large, strong wood growth, pruning should be done as early in the season, after the fall of the leaf, as we can be sure that it will not be followed by excessive freezing.

2nd. If it is desired to check excessive wood growth, and throw the tree into bearing, pruning should be done late in the summer—say latter part of July and during August.

3rd. When the wish is to merely thin out surplus and improperly placed branches, and regulate the shape of a tree, and leave it, so far as vigor is concerned, *in statu quo*, it should be pruned at the time it has fairly commenced to make its most vigorous growth for the season, whether it be in May or June.

These opinions have been formed not only on the facts as they have presented themselves to

my mind, but the why and wherefore of these results have been carefully inquired into, and every effect so traced to its cause, that I conceive it would not be a hard task to show that the above conclusions are based upon sound physiological principles. This is a question of great practical importance to myself and thousands of others—too important to be laughed out of company, and if my conclusions are erronous, no man would rejoice more than myself to have the error pointed out; but to make this plain, will, perhaps, require something more than a simple intimation that such opinions are based exclusively in childish credulity.

I will not at this time, ask to occupy your valuable space by going into an investigation of the scientific principles involved in these questions, as this might be considered theorizing, which is estimated very lightly by some, but shall content myself with giving some experimental testimony.

In 1866 I had a young orchard that I began to prune in February, and continued at intervals till August, and those pruned in June, did better, healed over sooner, than any pruned either before or after that period. In 1871 I began to renovate an orchard ten years old, that had been trained according to the absurd fashion of low heads which prevailed at that time. It took a great deal of cutting and trimming, but I was determined, and persevered; the result was that every wound made in June—the time the work was done, began at once to heal over, and by the time growth stopped in the fall, every place where a branch had been cut off, had a beautiful ring of new bark and wood, of from one-third to one-half inch in width all around it, and still they are doing well.

NEGLECTED PLANTS.

BY JOHN TULLY, ROSEDALE NURSERY, PHILADELPHIA.

PASSIFLORA PRINCEPS RACEMOSA. This charming old plant is one of the many all-but-forgotten in the race for novelties. It is a stove climber, of easy culture, and this, coupled with the beauty of its flowers, should make it a general favorite. What can have a more pleasing effect in one's stove than these beautiful raceums of scarlet flowers hanging from the rafters. By the following treatment I had it in bloom for nine months in the year:

In front of my house, and immediately under my hot water pipes, I excavated a pit, from two feet to two and a half feet deep, and about two feet in width. For drainage I put in about eight inches of coarse lime rubbish; I then filled my pit with a compost of one-half rough fibry loam, one-fourth turfy peat, with a free admixture of well decomposed cow manure and fresh water sand. I put in my plants in February, placed a board between them and the pipes; by the middle of June they were to the top of my stove and showing bloom.

I have grown Passiflora quadrangularis very successful in this way. I also planted it early in February, took it up to the roof, fertilized my flowers as they expanded, and by the end of August I had fine large oval fruit fit for dessert, some swelling, and plenty of beautiful flowers at the same time; it acts as a shade for the plants in summer, and in winter it will bear to be spurred like a vine. I have grown that beautiful scarlet trumpet flower, Bignonia Cherei, in the same manner, with great success. At the Rosedale Nurseries, Philadelphia, there is a plant of Bignonia venusta grown in a similar manner, and I am sure it has well repaid the trouble bestowed on it some years ago, for it is at present literally covered with its fine clusters of beautiful bright orange-colored blossoms, which one will not often see at this time.

INFLUENCE OF EXTREME COLD ON THE CURCULIO.

BY PROFESSOR RILEY, MISSOURI STATE ENTOMOLOGIST.

It is with difficulty that I find time now-a-days to write anything fugitive; but as you have expressed the desire (p. 14) to hear my opinion on the above subject, I will give it, however briefly.

1st. In assuming that the Plum Curculio (for, I take it, no other is intended) hibernates in the pupa state in the ground, Mr. Southwick starts out with a mistaken premise, which, of course, very materially weakens his conclusion, that "when the soil is much exposed to long continued freezing, the frost penetrates to a depth, and with *sufficient intensity*, to reach and destroy the pupa."

2d. Prolonged experience and experiment have convinced me that this insect invariably hibernates in the perfect beetle state, either above or just below the surface of the ground. This is a settled fact, and there can be no good reason

given for doubting it. I have invariably found that the beetles issue from the ground long before the frost sets in, and have kept numbers all through the winter, and found them at that season in their winter quarters out of doors. (For details see 3d Mo. Ent. Rep. pp. 11–13.)

3d. Intense and continued cold in winter is not so apt to destroy insect life as constant freezing and thawing. Once torpid, most insects may be frozen solid with impunity, and our little Turk is as tough as any of them. Repeated freezing and thawing is far more prejudicial than continued freezing, and if we are to attribute the scarcity of the Curculio in 1872 to anything at all, I should prefer myself to attribute it to the unprecedented heat and drought of the summer of 1871; for it is an established fact that excessive heat and dryness will destroy many insects which transform underground, if it occur at the time they are undergoing such transformations.

[As a matter of interest we quote what Mr. Riley says of the Curculio in the third report of the Missouri Entomologist.—ED.]:

"I shall not here repeat what has already been published about this insect; but shall confine my remarks principally to the unsettled and mooted points in its natural history, and to the new discoveries that have been made since the appearance of my first Report. I am glad to be able to say that I have forever settled the principal question, namely, as to its being single or double brooded. Authors have, from the beginning, held different views on this subject, and this fact should not surprise us, when we bear in mind that they reasoned simply from conjecture; nor will it surprise us when we understand the facts in the case. The facts that fresh and soft Curculios are found in this latitude as early as the last of June, and that they still come out of the ground in August, or as late as September, and even October in more northerly latitudes, are well calculated to mislead; while it was difficult to imagine an insect living ten months before ovipositing, without dwindling away through the action of its enemies. But in the beetle state, the Curculio has few, if any enemies, and in my former writings on this subject, I have shown that the other facts do not in the least prove the insect to be double-brooded. Among those whose opinions commanded respect, from their profound entomological knowledge and general accuracy, was Mr. Walsh, who, during his last years, strenuously contended that this insect was double-brooded. For several years I have entertained a different opinion, believing that it was single brooded, as a rule, and only exceptionally double-brooded; and the facts so fully bear me out in this opinion, that were my late associate living to-day, I should bring forth the testimony with a feeling of triumph, for he was not often in the wrong! It is worthy of remark, however, that Mr. Walsh's first impression, as given by him in the year 1867*, was that this insect is single brooded; his first opinion thus coinciding with what I have now proved to be the facts in the case. In my first Report I have reviewed the experiments which led him to change his opinion, and have shown that they did not warrant his final conclusion.

The many words that have been penned in the discussion of this question would fill a volume; but one stern fact, one thorough experiment, is worth more than all the theories that were ever conceived, or the phrases that were ever written on the subject. At first it seems to be a very simple question to settle, but the fact that it remained unsettled so long would indicate the reverse. Judge A. M. Brown, of Villa Ridge, at my suggestion, endeavored in the summer of 1869 to solve the problem by imprisoning the first bred beetles and furnishing them with plucked fruit. Dr. Hull partially performed a like experiment, and I did the same myself; but we were met by the advocates of the two-brooded theory with the objection that such a test was of no value, as the Curculio would not deposit on plucked fruit or in confinement; and to add weight to their argument they could cite us to numerous instances among butterflies to prove that many insects really will not deposit in confinement. But, as we shall see, they placed too much confidence in the instinct of Mrs. Turk when, from such premises, they made these deductions apply to her.

As I proved over and over again, the question could not be solved with any more certainty, by confining beetles to living boughs containing fruit, as the boughs could not well be covered with any substance through which the beetles would not gnaw their way out. So I determined last spring to build a frame over a large tree and entirely enclose it in stout gauze, that would neither let a flea in or out, much less a Curculio. Having accomplished this before the

*Practical Entomologist, Vol. II, No. 7.

blossoms had fallen off the tree, I awaited with pleasurable interest the result from day to day, from week to week, and from month to month; engaging a competent person to watch, when, from necessity, I was obliged to be away. It were worse than waste of time to detail here the many interesting observations made on this tree which I had under control, or to enumerate the many other experiments which I conducted in other ways, or the innumerable facts obtained; and it will suffice to give in a summary manner the results—premising only that every precaution was taken, and no expense spared, to prevent failure; that the experiments were satisfactory beyond my expectations, the results conclusive beyond all peradventure, and that I can prove every statement I make. To sum up then:—*The Plum Curculio is single brooded*, and I have a number now alive *which were bred during the latter part of June from the first stung peaches.* (At the time the printer is ready for this Report the beetles are still alive and flourishing—February 24th, 1871.) But, as there seem to be exceptions to all rules, so there are to this; yet the exceptions are only just about sufficient to prove the rule, for as far south as St. Louis not more than one per cent. of the beetles lay any eggs at all, until they have lived through one winter; or in other words, where one female will pair and deposit a few eggs the same summer she was bred, ninety-nine will live on for nearly ten months and not deposit till the following spring. In more northern latitudes I doubt if any exception to the rule will be found.

"As to the other mooted point, namely, whether this insect ever hibernates under ground in the larvæ state, I am perfectly satisfied that it never does, but that it passes the winter invariably as a beetle, under all sorts of shelter in the woods; generally, however, near the surface of the ground. Indeed, it often makes for itself a hole in the ground, seldom, however deep enough to more than barely cover its own body. In short, there is very little to alter or modify in the established facts in its natural history, which I have already published. The egg, instead of being 'oval,' as there stated, would be better described as 'oblong-oval,' measuring exactly 0 03 inch in length, and being nearly three times as long as wide. It should also be remarked here, that when depositing the eggs in apples, the female often neglects the usual symbol of Mohammedanism, which she so invariably inscribes upon stone fruit; and that where this mark is made on apples, it more easily becomes obliterated.

"During their beetle life, these insects feed continually, just as long as the weather is mild enough to make them active. While fruit lasts, they gouge holes in it, and after peaches have gone, apples are badly attacked. They also gnaw large holes in the leaves, and when nothing else presents, will feed on the bark of the tender twigs.

"The beetles often make a peculiar creaking noise (a fact not mentioned before of this species) by rubbing the tip of the abdomen up and down against the wing-covers.*

"Let us be thankful, therefore, that there can no longer reasonably be difference of opinion, or discussion on these questions, which, though of no very great practical importance, were yet of great interest to us all."

*A great many different beetles belonging to widely different families have the power of making a stridulating creaking noise, and though the instrument is found upon different parts of the body in different species, yet it is always made after one plan, namely, a file-like rasp and a scraper. In Darwin's new book (Descent of Man pp. 366-73) an interesting account of the different methods employed will be found. Every entomologist knows how commonly this creaking noise occurs in the Long-horn beetles, and that the rasp is situated on the mesothorax, and is rubbed against the prothorax. In the Burying beetles (NECROPHORIDÆ) these rasps are situated on the fifth abdominal joint, and are scraped by the posterior margin of the elytra. In the Dung-beetles again it is variously situated upon different portions of the body. Dr. Fitch (10th Ann. Rep. p. 12) has noticed the creaking noise by the Three-lined Leaf-beetle (*Lema trilineata*) which is produced by the same motions as those witnessed in our Curculio; but in this instance, as in all other stridulating Chrysomelidæ, the rasp is situated on the dorsal apex of the abdomen known as the pygidium, and is scraped by the wing-covers; while in the closely allied Curculionidæ which have this power the parts are completely reversed in position. Any one who will take the trouble to carefully examine the wing-covers of our Plum Curculio will find on the lower apical edge of each, a horny, slightly raised plate, about a third as long as the whole wing-cover, and transversely and obliquely ribbed by numerous parallel ridges. There is also a longer cord or carina near the sutural edge which may help to intensify the noise. The dorsal apex of the abdomen or pygidium forms a yellowish and roughened plate, with the sides horny and emarginate, so that when the abdomen plays up and down, these horny edges grate or scrape at right angles against the rasp.

In some instances the stridulation is possessed principally by one sex and serves no doubt as a sexual call; but with our Curculio as with most other stridulating beetles, both sexes seem to share alike in the power, and it then no doubt serves as a mutual call, or is used under the influence of distress, fear, or even pleasure for I have always more particularly noticed the noise of an evening when the Curculios were most active and preparing for their active night work.

SMALL PIPES IN HOT WATER HEATING

BY L. B. G., ROCHESTER, N. Y.

In *Gardener's Monthly*, Vol. VI, p. 53, you discourage the use of small pipe in the fire. Last fall I built a small propagating house, and to heat tank I suspended the boiler, holding two gallons, over the fire. I found when the furnace was banked I could not obtain sufficient heat. I then made a boiler 10 inches long by 3 inches in diameter, to receive flow and return pipes, to the bottom of which I attached 1¼ inch gas pipe, which drops through the fire nearly to the bottom of the grate: to keep up circulation in this pipe I placed inside a ¼ inch tube, reaching from near the bottom of the gas pipe nearly to the top of the boiler. I now get as much heat with a dull fire. The boiler works so well that I thought of using such an arrangement on a larger scale in a propagating house I am about to build. How can pipe in the fire give out when it will not get much hotter than the water? Do you think a small saddle boiler would answer better? I notice houses here with both brick and cement flues leak gas badly on dull days. In a house 80 feet long, 11 feet wide, would it not be better to run the flue forty or fifty feet, and heat the balance with water? Suppose clay or tile pipes had one end coated with pitch, then the joints butted together and cemented with mortar, similar to the collar illustrated in *Gardener's Monthly*, Vol. V, p. 86, would not the pitch by preventing the mortar from adhering to the pipe allow the pipe to expand, and yet be sufficiently tight to prevent leakage? I enclose clipping from *Scientific American* relating to the same subject:

A. B. says:—The heating pipes of a greenhouse are common sewer tiles, composed of lime and gravel, the end of each joint slipping into the next one. I find the heat or cold expands and contracts them, breaking the cement that I put them together with, consequently permitting the smoke to escape and fill the greenhouse, to the no small detriment of the plants. How can I obviate this evil, and is there any kind of springy cement with which I could join them? 2. What is the force per square inch of freezing water? 3. The news dealer charges me 8 cents for the *Scientific American*, that is $4.16 per year. Does $3 sent to you include postage; if not, what would the postage be? Answers: 1. As an expedient, we suggest that you cover the joints with a band of thin sheet tin, the ends of which you can lap and bend over with your fingers with sufficient tightness. 2. The expansive force of water in freezing has been estimated at thirty thousand pounds per square inch. 3. The postage on the *Scientific American* is 5 cents a quarter or 20 cents a year, payable by the subscriber.

Perhaps these inquiries are answered in *Gardener's Monthly*, 1862, for which Vol. I have just sent. As I have neglected to take the *Monthly* for the past five years, I find myself behind the times in regard to new improvements. The volumes I have I would not exchange for the best book in the country, and will soon send for those I have neglected to take.

ORCHARD CULTURE.

BY G ZIMMERMAN, BUFFALO, N. Y.

In your editorial of the January number, the remarks on "Preparing ground for fruit trees," will be valuable to all those who wish to plant an orchard on land which is not naturally underdrained.

The general opinion is, that such land is not fit for successful fruit growing, which seems to be true to the observer who passes through the country and sees the difference between orchards planted on sandy or gravely knolls and hillsides, and those planted on level clay land, managed in the ordinary way, viz: of constant plowing and cropping between the trees.

I have in my mind two orchards, both within four miles of Buffalo, the planting and managing of which. with the results, may give light on the question.

The one belongs to an old German, who never reads any paper or book but his Bible, but whose keen observation and shrewdness make him, in my estimation, one of the best fruit growers I ever knew.

His trees are all planted on the surface, then plowed up several times, so that the beds on which the trees stand are at least two feet higher in the middle than the side furrows. He then seeds it down, keeps it mowed, and never plows again, but give the trees an annual dressing on the surface, either of compost or stable manure, which he covers with creek sand, to which he has easy access. The trees are among the best I ever saw. His mode of pruning, too, shows more knowledge than the work of most farmers, for they generally do too much. He is well known to the fruit dealers in Buffalo for his fine fruit, more especially the cherries, which is a favorite fruit with him; next in his estimation is the apple.

That he realizes large profits from fruit growing is clear by what he said a year or two ago, when buying as usual a number of apple trees, "*If I were only 50 years old instead of over* 70,

I would come with the hay-rake and get wagon loads."

The other is an orchard of about twenty-five acres, and was planted about twenty years ago, on a piece of rolling land of a light sandy loam, mostly new at that time, the whole well underdrained and otherwise prepared, as is recommended by the best writers on the subject. The owner is a very sensible man, of a liberal character, who never hesitated a moment to make an outlay when the success of the enterprise seemed to require it; the whole orchard was kept in the *highest culture*, and vegetables grown between the trees. The result was, the trees grew vigorously in the extreme, but several times the blight made sad havoc among the pear trees, and even a number of the apple trees were badly affected, but these mishaps could not shake the enthusiasm of our friend—new trees were procured, and the vacancies filled as fast as made; but this excessive growth had a more serious fault; the fruit, although fine, was very little in quantity, making the difference in the balance sheet from year to year larger on the wrong side. Unfortunately, too, for the orchard, it happened that about that time (when trees were expected to bring good returns) that a tree carpenter (as you so fitly call them) saw the orchard, and I presume expressed the opinion that these trees are not properly pruned, and would not bear. They must have the shape of an inverted umbrella, so that the *air and sun can get in.* This seemed reasonable; the pruner got the job, and he did it *thoroughly.* The centre of each tree was cut out down to a few of the lowest tier of branches. Dwarf and Standard, Apple and Pear trees, were all treated alike. The consequence was, that this expensive orchard was half ruined, and did not pay the owner any better afterwards. It lost its charm for him, and a few years afterwards was sold to a market gardener, who now cuts down one lot of trees after the other, and threatens to cut down all the apple trees if they do not soon bear better.

These two orchards are not over three miles apart: the one which is made and managed with comparatively little cost brings the shrewd owner such satisfactory results, that he says: "*nothing pays him so well as his orchard.*" He has an experience of over thirty years' fruit growing on the same place.

SPECIFIC HEAT IN PLANTS.

BY G. DROBISCH, COLUMBUS, OHIO.

Is there any specific heat in plants? From time to time I have seen this question discoursed in different papers, and always read the arguments, for and against the existence of such, with great interest, yet without being fully convinced as to which is the true theory.

In your January number, page 5, I see a short notice on the subject by a correspondent, in which he refers to a former article, by Dr. L. Fritsche, and in which he explains in a very plausible way the phenomena on which Dr. F. based the existence of specific heat.

I consider myself entirely incompetent to give any opinion as to which is the right explanation in the mentioned case, as I never observed those facts under the same circumstances, but I will give you my experience, in making an observation which spoke much in favor of vegetable heat.

Four years ago, in the latter part of February, I noticed one morning after a cold night a heavy fog or dew deposited all over the surrounding landscape, forming a peculiar coating of frosted particles of the finest texture, and formation on trees, shrubs, and vines, giving them a very interesting appearance. The weather remained very dull and cloudy all morning, preventing the bright rays of sunshine to break through even for one minute, yet the temperature rose gradually towards noon, without reaching actual thawing. At 12 o'clock at noon, I noticed, in passing a number of grape vines, this fine frosted coating, which rested on them in the morning, had disappeared wherever the vines had any *life* in them, but on the extreme ends, which were of matured growth, and consequently winter-killed, and also on the dead tendrils all over the vines it remained on. This was certainly a very strange phenomena, and surprised me very much, and in trying to find any explanation for it, I could come to no other conclusion but what this could only be specific heat in the vines, which caused the thawing of this fine frost. Had it been the effect of exterior heat, I should suppose it to thaw first where deposited in smallest quantity, that is, on the fine tendrils and the slender tips of the vines, but the fact of being just the reverse, and to see all the tendrils still covered with frost, while the *live* canes to which they were attached were thawed off, made it most striking that this was to be attributed to some other agency.

I have never since been able to make the same observation again, and I think it was owing to the peculiar weather and temperature at that time, for if the temperature had been any lower I don't suppose the specific heat of those vines would have been strong enough to thaw that frost, and again at a higher degree (which it reached an hour later) it would have thawed off so suddenly at once, without giving any opportunity of making any observation at all.

In the above, I simply state the facts as I found them, and should like to have your, and some of your readers, opinion on the subject, whether there is any other explanation for this phenomena.

HISTORY OF THE BLOOD-LEAVED PEACH.

BY A LADY SUBSCRIBER, VICKSBURG, MISS.

Seeing in the *Gardener's Monthly* for February a desire expressed to know where the "blood-leaved *Gen. Tilghman* Peach tree" did spring, I wrote out to Mr. DeHebron, at Bovina, for the correct history of it, and I take the liberty of enclosing his reply. I have one of the trees growing finely. It certainly presents a very singular appearance when in bloom, the flowers being very large and nearly white, and the foliage dark red. I enclose a twig. I hope this information may prove as acceptable as it is reliable.

DEAR MADAM—Your letter was received a few days ago, and in reply I take pleasure in giving you a full statement of the General Tilgham Peach tree. It was found at Champion Hills, in Hinds County (near the spot that Gen. Tilgham was killed) by my nurseryman, Mr. P. I. Connor.

Mr. C. belonged to Cowan's Battery, and was present when the General was shot. In 1866, Mr. C. took a stroll over the battle-field, and near by the spot where the General died, in a cluster of briars, this singular peach tree stood. He brought it to my nursery, and it still bears its bloody appearance.

Yours very respectfully, JOHN L. HEBRON.

[Our correspondent has our best thanks for this note. She says her peach has large whitish flowers; ours is small and deep pink. The twig pushing into leaf also seems to have broader leaves than the one sent to us before. Are there two kinds?—ED.]

ANEMONE JAPONICA ALBA.

BY R. W., LANSINBURGH, N. Y.

Mr. Duncan's notes on hardy herbaceous plants, in your February number, were very good, and called attention to some worthy of more consideration than they receive, particularly the saxifrages, but I was disappointed in finding no mention made of the anemone japonica alba. There is no herbaceous perennial in my garden I value so highly as I do this, and it is a matter of surprise to me that it is not more fully appreciated. When in bloom, loaded with its snowy blossoms, it never fails to excite the admiration of those who see it, and during the summer its tufts of leaves are always bright and fresh, presenting none of the weediness common to many plants in general cultivation. This plant undoubtedly possesses the very qualities which place it foremost among hardy herbaceous plants, viz: great beauty and perfect hardiness. In conclusion, allow me to quote Mr. Robinson, who, in his "Parks and Gardens of Paris," says: this beautiful autumn bloomer should be in every garden where a hardy flower is valued," and I fully agree with him, and trust those who have not the anemone japonica alba will be persuaded by these words to add a root or two to their flower border. The addition will certainly not be regretted.

THE TUPELO AS A HEDGE PLANT.

BY W. M. NOBLE, BRIDGEPORT, CONN.

You say at some Society's report in the July *Monthly*, that the perfect hedge plant had not been found. True, but in the search, let me offer to your consideration "Nyssa sylvatica Tupelo Gum or Pepperige tree." I have never seen it named, but I think it will be found as hardy, handsome, and impenetrable as any other plant. As a fence plant, I believe it has a natural growth and aptness, which, without the shears no other can boast.

I know a natural pepperige hedge near here, never shorn, growing up twelve feet high, beside a stone wall, on a high and dry bank, which no creature could break through. The very horizontal or depending branches and style of this tree, fits it by nature, to interlace its wiry shoot into a ready formed hedge and stout barrier.

The foliage and form of this tree is striking and attractive in every season. Its winter spray is stout, yet gracefully depending, and of a pleasing grey. The bright and glossy leaves of its

summer form, rival the richest verdure of the season. In autumn, no foliage but that of the scarlet maple can rival the rich and enduring tints, which glow upon and adorn the woodland drapery.

It should be much oftener sought for—the arboretum on the lawn, clustered with others, or standing alone, its spire-like form yields a rare and stately beauty.

Cut out its leader when twelve feet high, and the whole strength of its vegetation crowds into the lower depending limbs, and quickly makes of this a lovely weeper. I have seen such. The shoots, which push up so vigorously in most trees when so treated, only shows in this after a long interval, during which the depending branches extend and perfect its new form.

I confess, so strong is this weeping tendency of the Tupelo, that I look, ere long, to find some sport therefrom, which has taken the form of a persistent weeper.

HOT WATER BOILER FLUES.

BY W. B. WICKEN.

The writer is by no means one of those who believe there is nothing like the "good old times," but it is his intention to write a letter in favor of the old and now-a-days despised Flue.

There are men of small means starting into business who cripple themselves too much by putting in expensive hot water apparatus, when properly constructed flues would answer equally as well, and could be furnished at much less expense.

And for more pretentious structures than the commercial florist would build, the flue could be made available. There are many who would build small conservatories, but are deterred by the consideration of expensive hot water apparatus. An objection against the flue in this case may be urged against its unsightly appearance, which could be easily met by a little ingenuity; the flue could be built under the floor of the house, and covered with ornamental open iron work, as is often done where pipes are used in such places.

Some would say the heat from a flue is more drying than that from hot water, and is not so healthy for the growth of plants, but in either case the heat radiated is a dry heat, as there can no moisture pass through the pipes; the one advantage the pipes have in this instance, is that the heat is radiated from a surface of lower temperature, and does not decompose the atmosphere to such an extent as does the superheated flue, but that fault can be counterbalanced by having on or near the flue pans of water, with large evaporating surface. Too often flues are built too narrow, and the draught too rapid, thereby consuming more fuel than is necessary, and overheating the material of the flue.

The writer's idea of a good flue would be one somewhat of more capacity than those in ordinary use, and with a slower draught, giving a larger heating surface and radiating heat at a lower temperature, and consequently consuming less fuel; another advantage the flue possesses (and will not admit it is a valuable one) it can be left without attention from four to six hours longer than can a boiler.

Flues are certainly as economical in point of fuel as hot water apparatus, if not more so.

The writer would not wish to be understood to claim that flues are better in every case than hot water apparatus, but believes in many cases flues are entitled to consideration as answering equally as well, and being cheaper than heating by hot water.

THE MELIA AZADERACK—A CHOICE TROPICAL PLANT.

BY F. T.

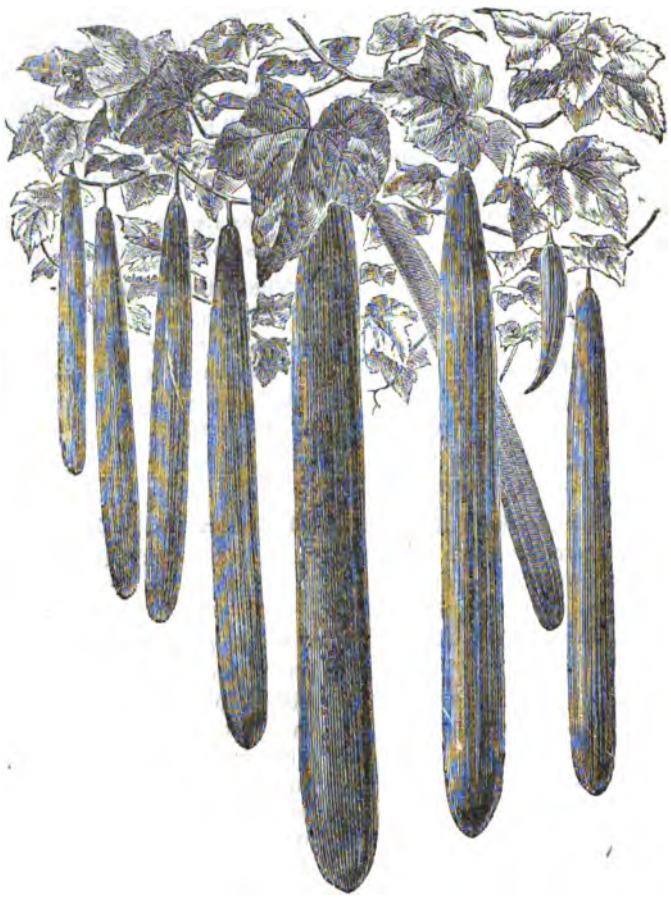
While on a recent visit to the commercial establishment of James Ritchie, exotic florist, of Philadelphia, who grows one of the choicest and varied collections of tender exotics, and has been famous for a third of a century past for a plentiful production and artistical arrangement of cut flowers to public and private entertainments, a pretty plant in bloom, attracted my attention, and got its name as *Melia azaderack*. It is of neat habit and lovely blossom, of lilac color and sweet scented, and in bloom in early February. I predict for it a wide distribution among the admirers of beautiful tropical plants. There were about two score of plants on the shelf, and all being in flower, made a fascinating show. It is yet rare, and commonly called "Cuban Lilac."

[This is the China tree, a popular ornamental tree in the South.—ED.]

EDITORIAL.

IMPROVED CUCUMBER.

In its wild Persian home, the cucumber would hardly know the improved varieties of English gardens. Even our readers accustomed to the wagon loads of "short pricklies" which abound in our markets, can have but a faint idea of the beauty and perfection of form to which gardeners bring them, who have them under glass culture. There are some who cannot eat cucumbers—indeed now and then are individuals who affect to regard them as fit only for hogs; but such are not the great mass of the people, as the enormous quantity raised and sold in the United States abundantly testifies, as well as does the fact that in every aristocratic garden in Europe they are highly prized, and the gardener who expects to get a first-class situation there, must be sure not to omit from his advertisement that he is well acquainted with the growth of cucumbers. Even if the cucumber were not valued as a delicate article of food in these old world establishments, a cucumber house would still be esteemed as much for the interest attached to its culture, and the really attractive show it makes, as for the mere production of fruit itself.



MARQUIS OF LORNE CUCUMBER.

Where houses are not constructed especially for cucumbers, they are grown in hot beds, made of stable manure, and only those who have been through it all know with what enthusiasm the

first seed leaves are received, and how the plants' growth is almost hourly watched, until from leaf to flower—from the opening of the flower to the artificial setting of the fruit—from the first setting until through hollow glass tubes they have been made to grow straight and slender, and covered with a lovely waxy bloom.

The properties of a good cucumber are, that it should be long, two feet if it likes, not very thick, two to three inches is enough—be almost round, that is to say with the ribs or ridges nearly obliterated; and the end which is nearest the parent stem should start with the thickness it is to have all the way through, that is it should not be bottle nosed. Then the seed should be small, and the space to be occupied by the seed, confined to the smallest possible compass. When to this there is a mild flavor, the perfection of cucumber growing has been reached.

We give with this, an illustration of the Marquis of Lorne, one of the most celebrated of the new English varieties. It not only serves to show off this fine variety to advantage, but it gives a general idea of what we have written in this chapter.

PULVERIZING THE SOIL.

All of us admit that when our very ancient forefathers turned up the soil with a stout crooked log, drawn by a steady old ox, there was considerable room for improvement. Indeed there has been a great advance. The plough and the spade sing a merrier song, and by their aid, happiness has been added to thousands.

But it is worth while occasionally to ask ourselves whether we have gained from nature all she will give us. For our part we firmly believe we have not learned by cultivation to get from her the half she is willing to bestow.

We know that it is not pleasant to lead off in opposition to popular sentiment. Generally it is not till long after a man is dead that the truth he taught comes to be recognized as just the thing to enter into a general creed. Most people shrink from the ridicule and the combat which the enunciation of a new truth is sure to bring forth, and rest satisfied with simply recording their facts and observations for other men to make use of; but those other men seldom come, and thus hundreds of valuable facts are thrown on the great public sea, which are not like that proverbial bread, which, cast upon the waters, returns after many days.

Now the *Gardener's Monthly* has faith in progress. It does not believe we have learned all that is to be known of the best culture. It has braved, and is willing to brave any amount of ridicule for what it believes to be true. It has lived to see many of the principles for which in the past it battled, accepted as valuable general truths, and in the future, it hopes to know that many more have been added to the list.

Well just now we want to ask our readers what is the use of the continual upturning of the soil which so much ground receives? Why, replies one, only plant on two inches of soil, and along side set out the same things on soil six inches or a foot, and note the difference. This is true, but we do not ask what is the use of deep soil—this we know all about, but after you have it deep, why turn it topsy turvy every year, as if the world were naturally made wrong side up? We must remember that by the aid of the *Gardener's Monthly*, we now know that there are two distinct sets of roots in plants, as distinct from one another in their functions as the leaves are from the branches, and that while one set of roots are like branches in this that they are mere supports and conductors of fluid; the real workers, or providers of plant food, are the numerous small fibers, which like the leaves, perish when their year's work is done. We further now know that the surface soil, when dry, absorbs nutritious gases from the atmosphere, and that it is at the surface that the small fibers feed. Now the bottom soil can never, under any circumstances, be as good for plant food as the surface, and the fibres do not go there to feed; yet we year after year turn the surface down, where there are few fibres to make any use of it. We know much more now than we did fifty years age about the advantages of surface manuring; but even those who have learned this lesson, dig and plough so as to bury deep the manure beneath the surface of the ground, and all because they think the soil needs an annual *loosening* before crops will grow.

Now there have been, time and again, facts given which prove that all other things being equal, the solid soil has the advantage over the loose soil. Stephens, in that magnificent work, the "Book of the Farm," tells how it was found by careful experiment, that wheat sown after the land had been suffered to be long enough ploughed to become packed and solid, always yielded much better than when sown on the newly loosened soil. Mr. Downing, a quarter of a century ago, in the *Horticulturist*, gave numerous facts to

show that garden vegetables and small fruits yielded better on the compact soil of alley ways, than in the loosened soil of the beds between. The best plant cultivators in pots, use dryish soil, and then pound it in as hard as a blunt stick can make it; and about Philadelphia, the most successful tree planters ram the trees into the earth with a rammer, precisely as they would a post. All along our public highways, we find trees which have to push their feeding roots among the hard rocky bed of the road, or under the flag-stones of pavements making growths which the same kinds of trees never make in the looser ground of gardens which the sidewalk bounds. In fact without going more into detail here, we may briefly express our opinion that thousands of dollars, and the sweat of ten thousand brows are annually wasted in digging and turning up ground which would have borne just as good crops without it.

Of course there are thousands of cases where the surface must be turned under. There is grass, and there are briars; weeds, long strawy litter, and rough stuff of many kinds. There are rows of trees to be planted, corn stalks of last year—in short, lots of good reasons why the surface should at times be turned over, but we want to enter our protest against the act being any special benefit to the soil itself, or of any benefit to the roots which are to collect food in it. They want *rich* soil, and would sooner go into the pores of a solid bone to find it than into the loosest soil without manure.

EDITORIAL NOTES.

DOMESTIC

The Japan Gold Banded Lily. We wonder whether the Japanese do anything to Lilium auratum to make them bloom extra strong? As we generally see them they never flower as well after the first year. The Hollanders pinch out the flowers of young Hyacinth roots, and when we get them they are thus extra strong. They never do as well any succeeding year as the first. Do the Japanese do something the same with this prince of Lilies?

Orchid Culture in America. The cultivation of these curious and beautiful plants is very much on the increase in this country. It is found that many of them at least do not require such expensive arrangements as was thought necessary years ago. The newest idea is to grow them in connection with grape culture. It is said that the hothouse grape and the orchid generally agree very well together.

Complimentary. Our thanks are due to the *Farmers' Home Journal*, of Louisville, and the *Western Farmer*, of Madison, Wis., for kind personal notices.

Piling on the Agony. There is a certain man at Springfield, Ohio, who has perhaps fleeced more nurserymen in the Union than any other living man, but who always manages to keep "strictly within the law," so the Springfieldians say. Not long since he got a New Yorker into his net, and refused to open the mouth—by a letter to say he was alive, that he might find his way out. Our New York friend started for the Buckeye State to learn what the matter was. Arriving at Springfield, he learned that the "fruit farm" was some distance out. He started for his Mecca. On the road he met a "gentleman" in a wagon and inquired the way, stating he was a stranger and from New York. The "gentleman" gave the required information, but added that he happened to know the "proprietor of (his wife's) fruit farm" had singularly enough started for New York that very day, on a bill paying expedition! Sad and sorrowful our weary traveler looked back on distant Springfield, and enquired for some way to get a ride. The wagoner was not going exactly there, but would take New York to the station for fifty cents. This was paid. Happening to tell his disappointment in the car on his return, he had an eye opener in the news that the man who brought him in was the man he was in search of!

P.S.—Fifty cents has been added to the claim against the husband of the celebrated fruit farm.

A New Hitch in the Postal Law. Until the present mysterious mass of matter called the "revised postal code," is utterly swept away, and some common sense enactment substituted, we hoped to let the queer thing die peacefully. But here comes the Postmaster General with another "What is it?" in the shape of a decision, which affects horticulturists severely.

The Postmaster General got so bothered in his efforts to make any English out of the law in regard to partly unpaid postages, that he gave it up in despair. He thought the language said that a letter partly unpaid must pay *double the pre-paid* rate on delivery; but whether it was to be double the amount actually pre-paid, or double the amount which ought to be pre-paid,

no one ever knew. Finding the English language of the postal code too much for him, he called in the Attorney General, whose knowledge of English led him to a different conclusion. It was not "double the pre-paid rate," but the unpaid part only.

But now the Postmaster General is sure that if this is so, the code only "says letters," and therefore, all matter of "the third class," not being letters, must pay "double the pre-paid rate." Our readers therefore must be sure that their seed parcels, cuttings, circulars and so on, are fully paid, or their innocent correspondents will have some pretty heavy bills to foot for other people's inadvertence.

The *Springfield Republican* gives vent to its feelings on the subject in this wise:

"The postal department claims the right to charge double rates on anything not absolutely and specifically forbidden by law, and there is no knowing where its ingenuity will break out next. There is no law against running the mails through a hay cutter and charging three cents on every separate particle of the chaff, and we may come to that some day."

For our part we only express a regret that a knowledge of the English language does not seem to be at all necessary to men sent to make laws for a great nation like this.

The Brussels Sprout. Of the various forms into which the original wild cabbage of the European coasts has developed, the Brussels sprout is one of the most singular. It throws up a straight stem two or three feet high, and after forming a small head on the top, produces a large number of small hard cabbages, about the size of an ordinary orange, all along the length of the stem. They are deliciously sweet, and are very much grown in England. They are not as popular in America, indeed so few know anything of them that we have thought this account will be like describing a new thing to many. The seed requires to be sown about the same time as the common late Drumhead cabbage.

In order that our readers may have a better idea of how they grow, who have not seen them, we give the accompanying illustration. There are many good varieties This one is known as Scrymger's Giant, and is esteemed as the best now grown in the old world.

SCRAPS AND QUERIES.

AZALEA INDICA ALBA.—*Mrs. A. E. F., Canandaigua, N. Y.*, writes: "In the February number of the *Gardener's Monthly*, I notice an inquiry as to the best white azalea. Noticing also that you recommend the *Azalea Indica Alba* as being the best, and having one of that kind in blossom, among other plants in my bay window, I take the liberty to send you a stereograph taken from it.

"I obtained the plant last spring after flowering, from Mr. John Cadness, Flushing, Long Island. Although less than two feet in height, it has now sixty-five buds and blossoms, many of which are semi-double; and is also making an abundance of new growth for another season."

[This makes a beautiful stereograph. The flowers are remarkably large and fine. We have rarely seen larger flowers, though under the hands of the best gardeners.]

PROPAGATING SHRUBS.—*J. N., Tidioute, Pa.*, writes: "I wish to inquire the method of propagating shrubs. The best season, whether under glass or out doors is the best, and in fact, the general manner as practised by nurserymen."

[There are scarcely two kinds of plants that are propagated in the same way. Some are grafted, others layered, some inarched, some by cuttings; and some which are raised in one way will not grow by the other. Then some will not do out of doors, and some only that way. Others must be operated in the fall, others in spring, and some during the growing summer time. If

our correspondent will specify any one particular thing we will gladly help him.]

NAME OF PLANT.—*T. M., Hartford, Connecticut*, says: "I have enclosed an orchid bloom, of which I will thank you for its name. It has been in bloom about five weeks. The pseudo bulbs are from nine to eleven inches long, and the leaves from five to seven inches in length."

[The crushed and almost shapeless mass seems to be *Epidendrum ciliare.*]

LATE SPRING.—A Johnstown, Pa., correspondent says, under date of 26th of March: "Winter still lingers with us. Last week we had six to eight inches snow, which melted away on Sunday. To-day we have five or six inches more, and mercury at 29°"

GROWTH OF PLANTS IN THE ISLANDS OF THE DELAWARE RIVER.—*J. D. K.*, says: "I have been surprised since living here at the growth of fruit on reclaimed marsh land. At the pea patch islands, (Fort Delaware) pears and grapes fruit profusely year after year. Pruning or no pruning, cultivation or sod, it is all one; and the site is below tide land, but properly drained. Fine hedges abound in the same region."

OLD APPLE SEED.—"*Pomology*," *Bloomington, Ills.*, writes: "I find a difference of opinion among nurserymen as to whether apple seeds will grow when one year old. I should be glad if you would insert an inquiry in the *Gardener's Monthly* as to whether any one can say of his own knowledge that apple seed a year old grew to any considerable extent. Of course four or five per cent. is not what I want get at. Will it grow any thing near as good as new seed?"

DISEASE IN ROOT GRAFTS.—*J. D., Kittanning, Pa.*, writes: "I have been engaged in the nursery business for twenty years. I have never had any difficulty in keeping root grafts (apple) until three years ago, when I lost fifty per cent.—last winter about ten per cent., and this winter's grafting, as near as I can tell now, about ten per cent. I keep them in a cave, with a flue from the centre for ventilation, six inches square. I pack in oyster boxes with sawdust, (pine or hemlock), the grafts being set upright, the points are exposed to the air. The difficulty seems to be fungus or mould. Whether it attacks the top or splice first I am unable to say; but I know that it spreads. It kills graft or scion (not affecting the roots) about one inch of the lower end or splice, and the same of the upper end or top. Is there any preventative or even cure for the disease? Do you suppose the cave is not ventilated sufficient, or does the fungus spread from the old boards which form the roof, and are beginning to decay? By giving me any information on this matter, you will confer a great favor upon me."

[Decaying wood often, much oftener than people think, originates fungus, which after it has once got into active life, will attack healthy vegetation and destroy it. The facts are so well established that there is no doubt of this now. No doubt if the cave be thoroughly whitewashed—a little sulphur in the white-wash would be a benefit, for these minute fungi hate sulphur—and all decaying wood kept away from the grafts, they would do as well as they formerly did. One of the most successful grafters we know, so hates wood that he does not use even sawdust, but sand. We doubt whether he loses one grafted plant in ten thousand—and has the same uniform success every year.]

PACKING TREES FOR SHIPMENT.—*S.* says: "I wish you would start the subject of tree packing again, and call for communications from your readers. Ask your readers to answer the question: Is quite wet, or only moderately damp packing best? Will very wet or rather dry packing best stand frost? Does much water hurt the roots?"

FLATTENED SHOOTS.—*T. S.* says: "In cutting scions for grafting or budding, I occasionally come across a scion flat, and the buds arranged peculiarly. These singular shaped branches are most frequently found on the top of heart and biggareau cherries, and sometimes found on pears of the soft wood varieties. I can't remember ever having seen one on an apple, Crab, or Morello cherry. I send you a very good sample by mail of a Bartlett scion. Of course you have often seen the same thing. Pray tell us the cause. The balance of the trees seem like other trees. It would look as though two buds had formed a natural union. If this is so, it would go to show that buds could be joined artificially, as claimed by the "Sweet and Sour Greening" writers.

[These appearances used to be attributed to great vigor, but are in reality just the reverse. Except that in some way or another the plant has lost in this particular part, some of its vital power, no one has been able to get to the immediate cause. The subject was pushed this far in a paper published in the proceedings of the American Association, at Troy, New York, in 1870. This view is confirmed by the specimen sent. The pith and interior wood is diseased. This may not prove that disease caused the flattening; but it certainly shows it is not *vigorous health*.]

FUCHSIAS.—*Miss L. R. M., Eddyville*, (no State named; one State will often suggest variations in treatment. It is best always to give it) says: "I wish to enquire, through your columns, the manner that Fuchsias should be treated in order to secure an early bloom. I have a conservatory, and keep a large assortment of flowers, and while my Geraniums, Roses, Heliotropes, Verbenas, etc., are flowering so freely, my Fuchsias still refuse to put forth a single blossom I have often noticed how florists have them to flower so beautifully when so very small. If you could write up Fuchsia culture you will greatly oblige."

[The Fuchsia deservedly holds a place in our correspondent's regard. We are always glad when any one asks us to write about Fuchsias, for a well grown fuchsia is among the most beautiful of all flowers. In regard to early flowering, there are some which have a natural tendency to bloom earlier than others. Coccinea rosea, Lustre, and Bianca marginata are of this class. But to get early flowers, plants a year old are better than young ones. After being a little dried up by the summer, prune in severely, and after the buds have pushed a little into new growth, shake out of the old soil, put in small pots with new earth; encourage this new growth, and when they are housed for the season, keep them in a temperature of about 60°, with plenty of sunlight, and they will probably flower well by February or March at latest.]

THE SPRING IN THE SOUTH.—*J. H. S., Alexandria, La*, March 28th, says: "We had a killing frost on the morning of the 26th,—thermometer 28° at sunrise. Corn cut off, and all cotton up, killed."

And by the same mail, *J. W. M., of Ladore, Neosha Co., Kansas*, says: "The weather is very warm and spring like. Prospects excellent." It is reversing things when Kansas crows over Louisiana.

A PRINTER'S BLUNDER.—Advertisements do not pass through the editor's hands, hence printers who do not know botany or technical terms, are always thankful when the hand writing is very plain. Mr. Campbell usually writes a very clear, plain hand, and there really seemed no excuse for printers, or anybody else, when at page sixteen of April number, they made him say his potatoes yielded one or two "berries," instead of *barrels*. The public, however, know pretty well by this time, that Mr. Campbell's potato is a pretty good thing, and berries or barrels, have no doubt laid in a good stock, or if they have not, they ought to.

HOUSE CULTURE OF ROSES.—*H. B., Delaware, Ohio*, writes as follows. We should be glad if some of our rose growers would give their experience: "I wish to ask a few questions in regard to roses. Do you think they do as well grown on the side staging of the greenhouse, in close proximity to the glass, (from 4 to 8 inches), or on the middle staging, from 10 to 20 feet from the glass? Several years ago we grew them on the middle staging, and never saw roses do better. On removing our greenhouses, we put up all small houses, and now in the spring, about the latter end of April, they seem to scorch and burn as if under the direct influence of fire, notwithstanding they are freely ventilated. Some of the tender growing kinds it seems to cut down altogether, and others it only blights the buds and prevents flowering. We have tried painting the glass with whitewash, and find it benefits; but are uncertain the true cause of this calamity. When one wishes to begin growing roses in large quantities, what season of the year is best to buy preparatory for propagating? To buy in spring and propagate in summer and fall, or buy in fall and propagate in winter? Please give me a few leading ideas on propagating roses—the best and most rapid, &c."

CRYPTOGAMIC PLANTS IN THE REGION OF THE YELLOWSTONE.—A correspondent who was on this expediton, writes: "We made large collections of Lichens, few Mosses and Hepaticas, but very few Ferns, and no Lycopodiums. The Algæ were quite numerous, especially Desmids and Diatoms."

BOOKS, CATALOGUES, ETC.

MANUAL OF WEEDS, OR THE WEED EXTERMINATOR.—By Dr. Ezra Michener: Published by Henry L. Brinton, Oxford, Chester County, Pa. The war against weeds is a righteous war, and we welcome into the ranks every new recruit that offers, especially such a valuable volunteer as Dr. Michener. There have already appeared works on weeds; but the weeds progress faster than their literature. Before a work which describes them all is hardly from the press, numbers of new weeds appear. New works therefore are always appreciated. Dr. M.'s work is not a large one—it being sold by the publisher, mail free, for seventy-five cents, but it contains a great amount of valuable nformation. The weeds are brought down to date, and described both botanically and popularly, so that any intelligent person can recognize them. Besides the particular means for weed destruction given with each species, there is a special chapter devoted to the advocacy of weed destruction by law. The Doctor wants an *inspector of weeds* appointed in each agricultural district. We suppose these things are all right. We have no wish to meddle with politics. But here in Philadelphia we have found to our sorrow, that "inspectors" will not work without pay—and that their pay comes out of the taxes; and as we have "inspectors" for almost everything, from peanuts to fiddle-strings, our taxes to pay them have swollen to beautiful proportions, till we, that is the *Gardener's Monthly*, sometimes wonder whether it is not as well to confine "inspection" to those cases wherein life and health are in immediate danger, at a moderate expense, than to be paying such enormous sums in order to show we have "rights."

It may be that being only the "*Gardener's Monthly*," we may be very ignorant of politics, and it may be owing to our having no politics, that we candidly confess we would rather pitch our farm down in the midst of a whole district of Canada thistles, and agree with Brother Southwick that the Canada thistle is a blessing to creation, rather than have our farm taxes increased to pay a lot of fellows to "inspect," the half of whom would not know a Canada thistle from a bull-rush. A weed inspector, indeed! Why ninety-nine out of every hundred farmers don't know a noxious weed when they see it. Let us have an inspector of agricultural ignorance, and fine every fellow ten dollars who does not subscribe to and pay for the *Gardener's Monthly*. It can be readily demonstrated that a hundred million a year would be saved to the country if every cultivator read this invaluable magazine.

PROCEEDINGS OF THE MASSACHUSETTS HORTICULTURAL SOCIETY FOR 1872.—There are few horticultural societies which give such substantial evidence of vigorous usefulness as the Massachusetts Society. In its exhibitions; its influence of the whole social atmosphere of Massachusetts; in the value of its published proceedings to the whole country, it is perhaps unrivalled by any existing American institution. We always receive their publications with pleasure, and lay them carefully aside for future reference. The present one is equal in value to any which have preceded it.

THE JOURNAL OF AGRICULTURE, St. Louis, Mo.—This venture of but a few years ago, has proved a great success. It has recently been sold for $100.000 to a company, in which the old proprietors are among the leading stockholders. General Marmaduke still remains managing editor; Thos. T. Turner is live stock editor; W. Muir, horticultural editor; C. V. Riley, entomological editor; Rev. M. L. Lewis, editor of the light reading. It has been before conducted with marked ability; the chief secret of its great success.

THE IVY.—A monograph: By Shirley Hibberd, Editor of the *Gardener's Magazine*. London: Groombridge & Son. No plant has struck so deep into the hearts of men as the Ivy. The holly, the rose, the cypress and myrtle—these and others have appealed in various ways to our affections; but none have come so close to us as this. The others seem rather the companions of our lighter hours; the ivy seems almost a part of ourselves.

The association of the plant with old ruins, churches and monuments, no doubt, has much to do with this. We consign to earth the remains of our loved ones; but not solely to the cold em-

braces of death, for the ivy lives and grows, and seems to offer itself as a barrier against decay and ruin. We can do nothing more, but the ivy still protects when we are gone.

Those who have not been in Europe can scarcely appreciate the depth of the associations which cluster round the ivy; but yet all who have a knowledge of English literature in some degree share the feeling. Americans can scarcely be expected to be found among ivy worshippers; and yet there is not a reader of these lines but is more or less interested in ivy history, ivy knowledge, and ivy culture.

We almost envy Mr. Hibberd the pleasure of his task, for that it has been a pleasure the work itself abundantly shows. Starting with the cover in green and gold, beautifully embroidered with ivy leaves, there is scarcely a page which has not a halo of poetry round the dry facts, perfectly glorious. The first part of the work is devoted to a sketch of the causes which induced Mr. H. to write; the second, a historical and literary examination of the subject. Here he tells us how in the most ancient times the ivy was associated with religious rites and ceremonies. How the most classic nations joined in this form of veneration equally with the most barbarous. How it entered into mythology; and how even Bacchanalian orgies paid a tribute to the ivy's wand. Scripture history even is not complete without a reference to ivy, the "corruptible crown" of 1 Cor. ix: 25, being the ivy crown of the Isthmian games. It entered into the politics of the Greeks, but more largely into the literary excellencies of that polished people:

"An ivy wreath, fair learnings prize,
Raises Maecenas to the skies."

In the earliest Christian times the ivy figured largely. The holly, the symbol of jollity, was always enlivened with ivy to give it a more undying tone. In these and numerous other ways, Mr. H. works up a curious ivy history. The second part is devoted to the characteristics of the plant. Here one may learn how it grows, or trails, or climbs—what it does in all circumstances. What it can do is not yet known, for no tower or tree has yet been built the top of which the ivy could not reach. How long it will live is equally unknown, for buildings many hundreds of years old, crumbling into dust, still are covered by its ancient ivy halle and green, as if but of yesterday. As Dickens says:

"Whole ages have fled and their works decayed,
And nations have scattered been;
But the stout old ivy shall never fade
From its hale and hearty green."

The uses of the ivy are told in an interesting chapter, shewing how, in numerous ways, seldom thought of, the ivy may be made to aid us in the adornments of our homes, and to add to the attractions of our gardens and grounds. Then there are chapters on cultivation, and on the species and varieties in cultivation, excellent illustrations being given to guide the reader in distinguishing them.

The growing attention to ivy culture in America at this time, will make the work particularly sought after by our readers. Though a very beautiful work, it is not so large as to be costly, but we are not advised of its price. It can be, no doubt, obtained by ordering it through any bookseller who has connections in the large cities.

NEW AND RARE FRUITS.

EARLY ASCOT PEACH.—Of this choice second-early Peach the Rev. W. F. Radclyffe has grown excellent samples. "It was raised a few years since by Mr. Standish, of the Royal Ascot Nursery, and proves to be a variety worth introducing to general cultivation. Our note of Mr. Radclyffe's fruit runs thus:—Fruit middle-size, roundish, somewhat depressed, with a shallow suture. Skin flushed with bright red on nearly all parts, suffused on the shady side with crimson, and on the exposed side with a deeper blood-red, almost black. Flesh slightly tinted with red at the stone, from which it parts freely; pale greenish straw-color, with abundant juice, and an excellent flavor. Mr. Radclyffe reports that the tree is hardy, and a good setter, and, moreover, suggests that its name ought to have been called Royal Ascot. This variety belongs to the section which bears small flowers, and has small roundish reniform glands on its peti-

oles. We learn from Mr Standish that it was raised from the Elruge Nectarine fertilized either by the Noblesse or Barrington Peach.—(*Florist and Pomologist*, 3s., v. 6., p. 1.)

GROS COLMAN GRAPE.—I will not attempt, nor have I the means to demonstrate, to whom we are indebted for this continental production —whether to casual results or judicious selections by some worthy member of the craft; but whatever its origin, I am certain of one thing, that in it we possess a Grape of the first quality.

Gros Colman is of free growth, robust in constitution, and sets under any ordinary treatment like Hamburg. The bunches are produced in great quantities, of a compact round form, something after the style of the Hamburg, an average when fully swelled from 1 to 4 lbs in weight. The berries are quite round, very thin-skinned as compared with those of other late kinds, and are the largest blacks in cultivation. Their jet exterior carries a magnificent bloom. Their flavor when ripe is very juicy, mellow, and rich, and loses nothing by the bunches hanging months after ripening, as the berries retain a plumpness found in few Grapes in March. This observation applies alike to it when planted in a house with Lady Downs, Alicante, Barbarossa, Black Prince, and others, or under pot culture. Why the sterling merits of this Grape as regards flavor, color, &c., should be impugned by some as they have been, I cannot understand. Probably the imperfect representatives sometimes met with may have furnished erroneous inferences, and therefore should not be regarded as conclusive.—J. M. C., in *Journal of Horticulture*.

PRESIDENT WILDER STRAWBERRY IN THE SOUTH.—In strong sandy loams or alluvial soils we have never seen a strawberry that pleased us so well for all purposes as this new variety. The plant is very vigorous, hardy and productive, and the fruit of the largest size, of the handsomest shape and color, and of the most delicious quality. When we add that it is also a good keeper and shipper, we have said about enough to give our readers an idea of how highly we esteem it. In our opinion it is the coming "upper-ten" market strawberry for the South; but it will take two or three years more to decide that point. In the meantime all should test it, and thus be enabled to judge for themselves. Perfect blossoms. Rather late.—*Rural Alabama*.

LATE PEACH, PICQUET.—In a late number of the *Rural Alabamian*, the editor gives a list of market fruit for the south, among which the Picquet peach is considered as unrivaled at its season. He says: "This variety is by no means as widely known and planted as it should be. For its season, it is the evidence of all who fruited it, that it has no compeer. Large to very large, bright yellow, and of the most excellent quality, it cannot fail to become one of our most profitable market peaches, ripening as it does when good peaches are scarce, and the trees being fine growers and abundant bearers. Season, first half of September; freestone."

This magnificent peach originated in the orchard of Antoine Picquet, Bel-Air, Georgia. In 1858 we cut the grafts from the original tree which died the following year. After fruiting it for four consecutive seasons, we put it in the trade, feeling assured at that time that it was destined to become a most valuable market peach. In this we have not been disappointed; and it is a source of congratulation to us to have added this peach to our list of superior fruits and saved it from destruction. It ripens with the *Smock* to which it is immensely superior in size, appearance and quality. The *Salway* also matures at the same time, but is also inferior to the Picquets, from a limited experience in fruiting the former, and from reports of others who fruited both varieties side by side.

PEN APPLE.—*Mr. H. M. Engle* says: "The article on Pen apple in March number of *Gardener's Monthly* will, I think, bear further comment. The apple exhibited as Pen—*resembling Baldwin*, is grown on trees received from the Nursery of Huston & Mifflin, Columbia, Pa. The trees were, no doubt, sent out by mistake, as the real Pen Apple which I exhibited at Reading, were handed to me by Mr. James L. Richards, of Columbia, who assured me that they were from the original *Pen Tree*, which grew near a pig pen,—hence the name. Mr. Richards is related to the right family on whose premises the tree stands. He has also fruited young trees of the Pen on his own ground.

The fruit under the name of Pen, (by mistake,) is now conceded to be Baldwin; competent judges have pronounced them identical. Their habit of growth is the same. What has been most puzzling is, that the *so-called* Pen is a better keeper than Baldwin; but we have as yet no instance where the two were fruited side

by side; and, therefore, soil and situation may have their influence. My own theory is the above named nurserymen, having introduced the Baldwin many years ago, and having propagated it for successive generations, it has thus become somewhat acclimated,—hence the slight difference between it and the Baldwin, planted direct from New York, or Eastern nurseries. Whether this, or the theory of it being a sport, be correct, will probably require further investigation or stronger evidence.

VOLNEY APPLE.—We have before as (April 10th) a specimen of this new apple, sent us by Prof. Volney Munson, of Lexington, Ky. He also sends us a description which, so far as the fruit is concerned, we can endorse as accurate. The perfume was delicious, in this respect, equalling any we know. It has not yet been distributed; but we see, by a paragraph in the *Farmer's Home Journal*, of Louisville, that the nurserymen of that region have it under propagation.

"*Volney.*"—Origin, orchard of Wm. Munson, of Fulton County, Ills. Tree vigorous, with a broad upright head; a good, regular bearer. Fruit; large, oblate, regular and uniform in size, of a rich waxen-yellow color with a bright pink cheek, sprinkled all over with light brown dots; stalk short, usually bearing a gland near the insertion, set obliquely in a shallow cavity surrounded by slight russet stripes; calyx closed, in a broad, shallow, slightly wrinkled basin; flesh, white, tender, juicy with a rich, subacid, pineapple flavor, very good to best; core very small and firm; endures handling and transportation remarkably well. Season, January to May.

WEST-BROOK OR SPECKLED APPLE.—In March number of the *Gardener's Monthly*, Mr. Blodget and yourself, think I am mistaken as to the identity of this apple with the fall orange, but I believe I am right, and give you some proof of it. Mr. Blodget, in September of 1870, sent me specimens of Speckled or West-brook, which I concluded were Fall Orange, and not having any of the kind on hand, sent to three different persons in western New York for fruit, which reached us in a few days, and confirmed me in my opinion. I immediately sent specimens to Mr. Blodget, with some of the West-brook or Speckled apples he had sent me. In a few days he replied, "the samples you sent me are identical with the speckled." Is not this some proof that they are one and the same apple?

I have taken some pains to ascertain the origin of this apple, and without going into a long history, say that it came up near the hog-pen of Deacon Allen, in the town of Holden, Massachusetts, nearly a hundred years since, and was first called "Hog-pen" apple, but was afterward changed to "Holden," which is still the common name in that State. I am informed that grafts of it were taken to Western New York, some forty or fifty years since, and the name probably having been lost, it received the name of "Fall Orange," which name has been retained because more generally known,—which is the case with Bartlett instead of Williams Bonchretieu, the original name. It has the following names in the different parts of the country:

Holden,	Holden Pippin,
Hog-pen,	Red Cheek.
Orange,	Jones' Pippin,
Speckled,	West-brook,
White Newell,	Long Island,
New York Bellflower,	White Graft.

I am satisfied that "Fall Orange," and Speckeled or West-brook, are identical; but if any doubt, I propose that both kinds be sent to American Pomological Society in September next, to be decided by the committee on synonyms, that is, if the Society approves of it.—C. DOWNING.

THE ECHASSERIE PEAR.—This is the excellent old pear referred to in the following note from a New Jersey correspondent. We place it under this head for, although not by a very long way a "new fruit," it has been so much discarded for worse new ones, that it is "rare":

"I do not wish to annoy you with my mania for winter pears, but having toiled the past twenty years of my life in vain dependence upon nurserymen and pomologists, to give me pears that would keep at least to the holy-days, I feel somewhat elated at having found two growing right here that keep like russet apples. These that I now send you were shaken from the tree, put in barrels in a damp cellar, where they have remained till now."

THE CRITTENDEN APPLE.—The following memoranda in reference to the above were obtained from Mr. Winn Gunn:

This apple originated in Shelby county, about

four miles from Shelbyville, on a farm formerly owned by Mr. Gunn, but now the property of Mr. W. Belloo. Tree rather a slow grower; the fruit about the same size as that of the Prior's Red; sweet, fit for use throughout the whole winter, and has been known to keep until September of the year following its ripening; Mr. Gunn has himself kept the fruit until June. The tree never received any pruning during the time it was in Mr. Gunn's possession. Under better treatment, doubtless, the fruit would be larger in size and better in quality. Mr. Gunn named the variety in honor of John C. Crittenden.—*Farmer's Home Journal.*

NEW AND RARE PLANTS.

SOUCHET'S NEW GLADIOLI.—Monsieur Souchet, of Fontainebleau, who is unusually successful in the cultivation of Gladioli, has again raised some new kinds, remarkable for their size and perfection of form, as well as for new colors. Among them, the following will be found desirable additions to any collection, viz.:

Addison.—Spike large; flowers very large and of a deep amaranth, striped with white. A lovely plant of middle height.

Benvenuto.—Spike long and striking; flowers very large, much open, of a pink or pale orange color, very brilliant and transparent, spotted with white. Plant of a middle height.

Elvire.—Spike long and fine; flowers large and pure white, edged with carmine. Plant middle height.

Eva.—Spike ample; flowers large, ground color white tinted and shaded with rose and pale lilac. A fine flower. Plant of middle height.

Figaro.—Flowers large and open, rose or reddish-orange, tinted with a deeper shade, and having large spots of pure white. A grand plant.

Le Phare.—Spike very long; flowers large, brilliant bright red and very open. Plant medium height.

Lulli.—Spike good; flowers large and perfect; bright cherry slightly tinted with orange; ground color clear, the inferior division striped with carmine. Plant of middle size.

Macaulay.—Spike long and splendid; flowers large, deep crimson slightly tinted with violet and spotted with deep carmine; centre clear and transparent Plant of middle height.

Margarita.—Spike very long; flowers large with a white ground, tinted with carmine. A strong growing and beautiful variety.

Octavie.—Spike long; flowers large, of a pretty pale pink, slightly edged with red, and lined and spotted with pure white; centre very clear. A low growing variety, but one that is exceedingly beautiful.

Reine Blanche.—Spike very long; flowers beautiful; pure white with small spots of deep carmine.

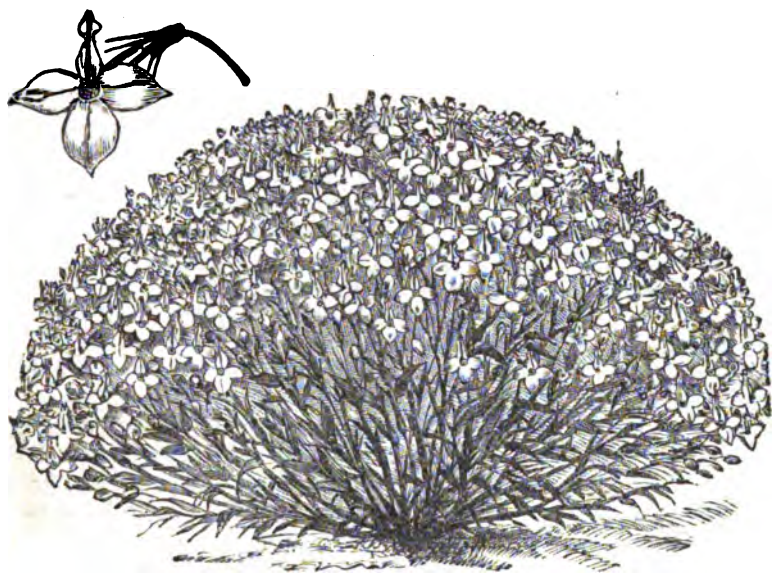
Venus.—Spike very long; flowers large; pure white flushed with pale pink. A splendid variety of middle height.

—E. A. CARRIERE, in *Garden.*

NEW COCKSCOMB, TRICOLOR.—In our last we gave an illustration of a new cockscomb introduced from Japan, and to which a lady refers in our present number. The one we now illustrate is a florist's improvement, and has a head

of various colors. There is a broad stripe of crimson, then of gold, and the next of rich carnation. It is surprising that this character has become so well fixed as to reproduce itself from seed, but they say this *Tricolor* does it, and does it well.

LOBELIA — CARTER'S COBALT-BLUE. — We saw this flowering last year; and nothing is handsomer than the dwarf compact form—more like a mass than a flowering plant, only that it is crowned by the dense mass of light blue flowers. Mr. Shirley Hibberd says of it in the *Gardener's Magazine* of January 6th, 1872: "There was one piece of a new bedding Lobelia which surpassed every thing of its class on the ground, a better thing even than Blue King, but in that way; the color a clear pure blue, the growth compact; in fact the whole thing perfect, as if cast in a mould and colored by a master of parterre planting, who knows exactly what is wanted. I was desired to name this, and proposed it should be called Carter's Cobalt-Blue, and under this designation it will probably be offered to a discriminating public; the stock is to be made from seed, and the variety is to be distributed in seed." The distinguishing character of this plant is that it has no white in the eye of the blossom, nor any purple on the calyx; so that the brilliant blue has the entire possession of the field of color.



LOBELIA—CARTER'S COBALT-BLUE.

NEW ORNAMENTAL TREES.—Messrs. Standish have in their collection the new Japanese Larch, Larix leptolepis, which resembles the common Larch in habit, but is of more robust growth and larger foliage; this tree will be a great acquisition. Their new Conifer, Thujopsis borealis alba, is a charming plant, originally a sport from T. borealis, and although bearing a resemblance to Cupressus Lawsoniana albospica, it is distinct from it. This is another valuable acquisition to our hardy Conifera. A fine example of Quercus pannonica, with its large dark green foliage, is to be seen here, and it is a species which should find its way into every villa garden and shrubbery. Acer polymorphum dissectum is a lovely small growing Japanese Maple, the foliage of which is just now of a bright scarlet color. Messrs. Standish & Co. possess also the stock of a very distinct, hardy, and almost evergreen Maple from Japan, Acer rufinerve, a strong growing kind, which retains its foliage until Christmas, and in very mild districts would be really evergreen.—W. DEAN, in *Gardener's Chronicle.*

CAMELLIA PRINCESS ALEXANDRA.—A very beautiful addition to the regal group of Camellia japonica. In growth this variety is free and robust, in verdure a rich deep lustrous green, in bloom above average size; near to perfection in its circular outline, uniform and evenly imbricate in its structure and build: petals thick and leathery in substance, the outer ray of petals nearly round (rose-like), graduating in size and outline to the full centre. In color a delicate rosy-blush, suffused with a rich carmine tint, delicately traced with ramose veins, leaving an

outer margin of blush white on each petal, the outer ones being occasionally marked with broad crimson bars. The union and varied contrast of rich roseate tints blending with an outer zone or margin of silvery white, forms an exquisite feature in this beautiful flower. So says an English writer.

DELPHINIUM BELLADONNA.—Although by no means new, it is undoubtedly one of the choicest of border flowers. Unfortunately with me it is somewhat delicate in constitution, yet it flowers abundantly; still, it does not increase much in size from year to year, and as it is perfectly barren there is no method of propagating it save by division. The flowers are of a lovely sky blue, a color so rare amongst plants that it renders it at once conspicuous and effective.—*Journal of Horticulture.*

VIOLA CORNUTA we noticed a few years ago. It grows about six inches high. The flowers are borne all well up above the foliage, and forms a compact mass of rich, deep violet colored flowers. Its hardy constitution and profuse blooming qualities renders it one of the most beautiful of Spring and Summer bedding and border plants. There is now a variety resembling the above in all the characters and habits, excepting color, which is pure white. We see it is advertised by a Rochester firm.

MR. LAXTON'S DOUBLE DWARF PELARGONIUMS.—I have forwarded a small box containing blooms of my new seedling double dwarf Zonal Pelargoniums, Jewel (First-class Certificate, Royal Horticultural Society), E. J. Lowe, No. 30, and semi-double Aurora. The flowers of the two former are almost mimics of various Roses, and if mounted with small rose foliage and buds in a miniature stand, would almost pass for Liliputians amongst the queen of flowers. E. J. Lowe, from the white exterior of the petals, has a striking effect in the truss, and Aurora is a very free blooming, bright colored variety of the Tom Thumb race, to which all the varieties belong, having none of the blood of the old coarse growing Inquinans, or Gloire de Nancy type in them. I have also been cross-breeding for variety in color, and have obtained some striking novelties in dark purplish tints; and although I have not yet succeeded in getting a pure white—one of the objects I have been aiming at, several blush and light pinks have appeared, and I have no doubt that I shall be able, time and opportunities permitting, to bear out Dr. Denny's remarks, and obtain by cross-breeding the result sought, or at all events an approximation thereto, although I have been anticipated in this respect, to some extent, by Nature, who it appears on this occasion, as she frequently does, has favored our Continental neighbors. I hope to send you shortly some remarks on Dr. Denny's paper on hybridization. —THOMAS LAXTON.

[Of the flowers sent, Jewel is much the best. It is rich and clear in color, and remarkably full and well formed. No. 30 is a little more open-eyed, while Aurora is semi-double, and the brightest of all. E. J. Lowe does not appear to open well, and in consequence, looks pinched up. We look upon Jewel as a real and decided acquisition.—EDS. *Gardener's Chronicle.*]

LISIANTHUS PRINCEPS.—It has been called a greenhouse plant, but there is little doubt it will be found to thrive best in an intermediate house. This superb Gentianaceous plant was considered by the late Dr. Lindley to be "one of the best plants in existence." It is a compact branching shrub, growing about two feet in height; the leaves are opposite, oblong-lanceolate, acuminate and dark green on the upper side, paler below; the blooms are produced in graceful drooping racemes of from three to five; the flowers are tubular, the calyx being about half an inch long, and the corolla about six inches in length, and upwards of an inch wide; the color of the tube is rich scarlet, melting into golden yellow at each end. It is found growing at elevations of from 10,000 to 11,000 feet above the level of the sea, in the province of Pamplona, in New Grenada, but it is a rare plant even in its native country.

NEW FORMS OF ORNAMENTAL BEET.—Mr. John Clark, gardener to Mr. Mitchell Jones, of Edinburgh, furnished a surprise for the *habiteus* of South Kensington, on the 15th inst., by sending up a box of his new forms of ornamental Beet, and which in the stage of growth as exhibited, presented some of the richest and most beautifully marked foliage to be found in plants outside the stove, and which elicited from Mr. J. Bateman the declaration that even the Orchids would have to look to their colors, otherwise they would lose the honors of the day. Mr. Clark's box of Beet comprised twenty-one plants,

all growing in 48 sized pots, and all about nine inches in height, the habit in most cases being good, and some of them as dwarf and compact as could be desired. The diversity of coloring was great, no two plants being exactly alike, and comprising shades of silvery white, buff, orange, red, scarlet, vermillion, claret, maroon, crimson and purple. Some of the leaves had veins of one color and the edges of another. It is a peculiarity of these forms of Beet, that whilst all the taproots are of the ordinary color, the small rootlets are of the same color as the foliage. They were highly commended for greenhouse and conservatory decoration in the winter, and for that reason was awarded a First-class Certificate, but if they produce these brilliant colors in the open ground they would be invaluable for bedding.—*Gardener's Record.*

BERBERIS DARWINII.—(1½ to 2½ feet). This is the most beautiful of the tribe. It is quite evergreen, and covered in spring with deep orange-colored flowers of a large size. It is well adapted for a large bed or ornamental fence, or as individual plants.

BEGONIA INTERMEDIA.—This remarkably fine hybrid Begonia is the result of a cross between the B. Veitchii and B. boliviensis. In habit it partakes strongly of the B. boliviensis, being a strong upright-growing plant, branching freely, and attaining an average height of fifteen to eighteen inches. The leaves have much the form and substance of the Veitchii, but are toothed like boliviensis. The flowers are of the size and form of Begonia Veitchii, and resemble it also in color, but are of a rather darker shade. This is the hardiest hybrid we have yet raised. It succeeds well in a greenhouse, and can be wintered in a cold frame; indeed, it has lived during a mild winter out-of-doors with us. It was awarded a First-class Certificate at the Exhibition of the Royal Botanic Society, June 14, 1871.—*Veitch's Catalogue.*

A NEW POINSETTIA.—When in the nursery of Messrs. Veitch & Sons, at Chelsea, a short time since, I had an opportunity of seeing a variety of our old friend Poinsettia pulcherrima, which will undoubtedly quite take the place of the old form, both for market work and home decoration. It differs from the latter in having much broader bracts, packed so closely together round the flowers as to form a double series, instead of being set at right angles like the sails of a windmill. The color is also much richer, and the bracts are fully developed quite fifteen days earlier than those of plants of the normal type grown under precisely the same conditions. To say more in its praise is not necessary; those who are interested in having poinsettias in full bloom earlier than is now possible to have them, and of a finer quality, without increased efforts, will act wisely in looking after the variety which will, in all probability, be distributed by Messrs. Veitch as *Poinsettia pulcherrima major.*—GEO. GORDON, in *Gardener's Magazine.*

FOREIGN INTELLIGENCE.

HARDY FERNS.—To grow hardy Ferns in perfection a humid atmosphere is necessary, and when they are making fresh growth the house which holds them should be shut up in the afternoon, and the plants syringed through a rose. Under such circumstances the young fronds develop themselves as if by magic, and are a source of much enjoyment to those who take an interest in this class of plants. Ferns from warm latitudes, as a matter of course, require a higher temperature—55° in winter is a good medium for them, and from 65° to 70° in summer is essential as a night temperature. Nearly all the species luxuriate in a compost of equal parts turfy loam and tough fibry peat, with the addition of a fair proportion of silver sand and a few lumps of charcoal. It is of vital importance that the drainage be perfect, as the Fern, though a moisture loving plant, dislikes stagnant water about the roots. The potsherds used must be clean, and placed with the convex side downwards, the largest pieces at the bottom, the smallest at the top, and over this some fibry material must be placed to prevent the mould used in potting from mixing with the drainage. In potting press the compost in firmly, but not so much so as is done with fruit trees or hard-wooded greenhouse plants. Overpotting should also be avoided, as indeed, this is frequently the cause of failures. The fresh compost gets sod-

den with water before the roots can ramify into the mass, and mischief ensues.

Then with regard to propagation. Some of the species are very easily increased by division, and it is thus that most of the Adiantums and Pterises are reproduced. Take, as an example, that most useful of all the Maiden-hairs, Adiantum cuneatum. We are continually using its delicately cut fronds for hand, button-hole, and other bouquets, and well grown plants of it are always ready for dinner table and general in-door decoration. You may take a large plant, and with a knife or small trowel divide it into a dozen pieces, which if put into small pots, and placed in a close moist atmosphere and a stove temperature, will each make a nice plant in a few weeks. Some species grow with a single stem, and therefore cannot be divided. Of these the Lomaria gibba is one, and a very desirable species. It is very freely propagated from spores; about sowing which, there is no need to trouble, as, if they are allowed to ripen, the young plants will be plentiful enough. However, should a large quantity be required, it is as well to sow them. Seed-pans or ordinary flower-pots should be used for this purpose. Drain them well, and fill up with the compost already recommended, but with the addition of a third part of pounded bricks. The spores when matured should be placed on the surface, and after being watered with a fine rose, covered with a square of glass to maintain a moist atmosphere.—*Journal of Horticulture.*

SPECULATING IN NEW ROSES.—My motto in respect to roses is, "*Prove all things; hold fast to that which is good!*" This, it will be said, is good advice to the rosarian of limited means, and is intended for him. Propagate and buy in the good roses, now abundantly proved, lists of which are periodically placed before the readers of the *Gardener's Magazine*, written by men of undoubted talent, judgment and honesty. The writers of articles on roses and other flowers in the Magazine, be it known, have nothing to gain but the gratitude and good will of their brother rosarians and florists generally. It is to the great humbug our neighbors, the French nurserymen, are imposing upon us that I wish to direct attention; it is now an ascertained fact that not more than about one new rose in ten remains in the English catalogue more than three or four years.

There are two classes of rosarians; the first are the gentlemen of great private means, who can easily afford to ride hobby-horses, and buy in all the new roses as soon as they are to be procured. They select those which they think best, and are led on, year after year, by glowing descriptions given by the French raisers, and not by the English nurserymen, who cannot possibly describe a rose unseen. In July the great rose exhibitions are held at Kensington and the Crystal Palace, and are anxiously attended by amateurs, who note down all the varieties which take their fancy. The poor amateur is often deceived with his eyes wide open. The rose that has taken his fancy perhaps, turns out a weak grower, most delicate in habit, and not at all suited to his soil or situation. But his mind is made up; he must have it in his collection; it was really so very beautiful at Kensington. He never once thinks that that particular rose has been grown by a most skilful cultivator, who has spared no pains to bring it to its present state of perfection. If it were not for that natural longing for change, advance and improvement, we should hate toil, and treat work and exertion as a curse; but kind Nature has made improvement in flowers, the rose particularly, as well as other things, both the law and necessity of our existence, and has so made us that the inspiration, the command, and the spur are all within.

The second class of rosarians have the same feelings and desires as those of the first class, but are limited in their means, and must be content to ride third class. They get to their journey's end slower than by the "express." They have the advantage of buying roses that have been proved good; they have seen them with their own eyes, and they procure them at a much cheaper rate than their richer brethren, who purchase things unseen. Another great advantage awaits them—the road has been cleared and the rubbish swept away. The rich rosarians must be encouraged by high prizes being given to them, and nurserymen also, for introducing new roses of merit, else they would cease to import them, and bring them before the public.—*Gardener's Magazine.*

NYMPHÆA ODORATA.—In Nymphæ odorata we have a perfect miniature of the N. alba. Its flowers are white, about the size of a florin, and highly fragrant, and they usually appear about July or August. When cultivated in the open

air the leaves average about two inches across, but when grown in the stove or greenhouse (as it often is, though perfectly hardy) the flowers will be two inches and the leaves four inches across, the latter generally of a reddish-purple underneath.

It is of all others the plant for small tanks or basins, requiring only a depth of from six inches to nine inches of water for its perfect development. If planted in a pond, it should be near the margin, and must not be planted more than a foot below the surface. It will also be advisable to introduce a few rough pieces of rock, so placed that the water can flow in and out, to separate it from the rest of the pond; and also to lay a few smooth pebbles over the surface of the soil, to keep it in its place.

The native habitat of this desirable acquatic is in ponds and slow-flowing streams from "Canada to Carolina." It is the most lovely of all the small growing water plants, save and except that it has a rosy-cheeked cousin across the Atlantic, which, when introduced from the Canadian lakes, will become a formidable rival to it. Be it known, therefore, unto "Ye Englysshe" that the Nymphæa odorata rosea does exist in those lakes, and when we get the two to flower side by side, one rose and the other white, both equally fragrant withal, and corresponding in size, it will be a sight to see, and would almost justify us if we were to adopt the old name for these flowers, viz., Water Roses, for thus they were termed in this country about the time, now nearly three centuries ago, that Prosper Alpinus wrote his work on "Egyptian Plants," the 136 plates of which, containing the Nelumbium, Papyrus, &c., were cut in "brasse." The N. odorata occasionally ripens seed in the open air in this country, and young plants have been raised therefrom; still it is slow to increase, and is, therefore, comparatively rare.—W. BUCKLEY, in *Florist and Pomologist.*

FOREIGN CORRESPONDENCE.

HORTICULTURAL OBSERVATIONS IN ENGLAND, No. 5.

January 7th, 1873.

The weather here at the present time is a prolific theme of conversation, and I suppose I am a little tainted with the epidemic myself, as I cannot resist the temptation to make a few remarks about it to you and your readers. In the first place we have had a very wet season so far, not only here but all over England, and also for this season of the year a very uniform high temperature.

In a former communication, I think I told you that we had a slight frost on the 23d of September, which cut some of the tender plants on low ground; that is the only approach to frost we have had excepting a similar touch on the 12th of December. I have a very correct thermometer, and have kept a careful record since the 1st of August last three times a day, viz: at 9 A. M., 12 and 6 P. M., and I have not seen it yet down at the freezing point, 32°, though it must have just gone down to that in the night, as the ground was a little crisp in the morning, but my glass marked 34° each time at 9 A. M., and the lowest it has been at that time, since December 12th, has been 40°, and at that only once, December 30th. If you think it worth printing, I will give you an abstract of my record from December 20th to January 8th. December 21st, 9 A. M., 48°; 12 M., 56°; 6 P. M., 56; 22d, 56°, 62°, 56°; 23d, 56°, 60°, 56°; 24th, 56°, 58°, 56°; 25th, 56°, 60°, 56°; 26th, 54°, 55°, 53°; 27th, 52°, 56°, 53°; 28th, 54°, 55°, 52°; 29th, 51°, 53°, 50°; 30th, 40°, 50°, 49°; 31st, 50°, 52°, 48°; January 1st, 46°, 50°, 51°; 2d, 48°, 48°, 48°; 3d, 48°, 52°, 50°; 4th, 52°, 55°, 55°; 5th, 46°, 52°, 50°; 6th, 50°, 55°, 54°; 7th, 50°, 51°, 52°.

With such a temperature you can imagine the appearance the country assumes under such favorable conditions. I passed a meadow yesterday on a sunny slope, and it was nearly white with daisies in full bloom, and in an orchard close by was a thrush in full song. I could actually hear him for near half a mile.

In almost every garden the English sweet-scented Violet is in bloom, and in two or three places I have seen the native Primrose in bloom already. In one of the squares is a residence with a piazza fifty feet, with a plant of Passiflora cœrulla in full leaf, covered the whole length with the lemon-colored seed pods: two ornamental boxes outside on the window sills

(never been taken inside yet) full with geraniums, some of them in bloom.

In several places I see fine plants of Veronica Andersonii in full bloom. Laurustinus, everywhere beautiful, single specimen plants eight feet high and more through; perfect hedges of them three and four feet high. some in bloom, but all full of buds ready to burst. Plenty of double Daisies, and a polyanthus I saw in bloom to-day; also the old China or Belmont Rose.

Evergreens, and evergreen shrubs, are in their glory here. Arbutus unedo, some in bloom, some going out, and others covered with their beautiful pink pericarps; fine specimens also of Aucuba Japonica, Alaternus, Portugal and Common Laurels, Magnolia grandiflora, with its regal glossy foliage; another beautiful evergreen shrub, which blooms continuously from August to December, is Escallonia macarantha. There are three distinct plants which flourish and make extraordinary growth in this locality, viz: the Weeping Ash, Cupressus macrocarpa, and the Cotoneasters: the two first make shoots in one season from two to five feet long, and the last you will see as a beautiful upright hedge, in other places covering rockwork, and again trailing over the walls, hanging down four or five feet, and all covered thick with berries. Yesterday, to my astonishment, in passing a house, where not more than two months ago, I saw the common Nasturtiam trained up the walls, and now here were a whole batch of seedlings, three inches high, come up, and growing and flourishing as if it was midsummer. Take a walk in the woods with me and I will show you the *holly* and *ivy*, the latter running to the tops of the tallest trees, covered with berries; here again is the dainty little evergreen, the Butchery broom (Ruscus aculeatus) with its bright solitary berries "*ruddier than the Cherry;*" here on the ditch banks a thick mass of Ivy; also the ground Ivy (Glechoma hederacea) and various other plants, with the young leaves and buds of the primroses trying to force their way through; but without exception the most showy native plant we have in the winter here is the Iris fœtedissima: it grows in the woods and lanes, and its tri-parted pericarpt burst open in the pale, and reveals and exposes its future progeny in its bright scarlet persistent berries, which remain all winter, even if you cut them and put them in a vase on the chimney piece, and then to add to its beauty is its bright green Gladiolilike foliage, eighteen inches long. Yesterday, by a fine plant of Scolopendrium (which grows every where here) I saw a plant of Lamium Album in full bloom. But enough, Mr. Editor, I fear if I expatiate any more on the native beauty of Devonshire, you may be tempted to advertise your establishment for sale, and come over here to "roam the woods with me."

J. W. W.

HORTICULTURAL NOTICES.

GERMANTOWN (PA.) HORTICULTURAL SOCIETY.

The first exhibition of this young Society, held early in April, was a great success. A large number of members are enrolled, and some fifteen hundred tickets were sold to non-members at the door. The exhibition was well sustained in all its departments; and in the rarity of some of the specimens, and the excellent growth of others, would have done credit to much older and better known societies. Most of the florists and nurserymen of the vicinity contributed; amongst them Messrs. Miller & Hays, John Kinnier, David Fergusson, Wm. Grassie, L. C. Bannan, Mrs. Waltemate, Wm. Young and Thomas Meehan. Mr. Kinnier took the leading part in the great work of the details of the affair.

Of the gardeners and amateurs who exhibited there were chiefly Alfred Cope, Frederick Wessel, gardener to Jos. H. Lovering; T. T. Mather, Dr. Levitt, James Thomas, gardener to E. J. Bucknor; Joseph Houseley, gardener to W. H. Sowers; John Casey, gardener to Dr. Ashton; Alex. Lawson, gardener to T. Charlton Henry; John Warr, gardener to Mrs. Fisher; Thos. Hendricks, gardener to J. Jay Smith; Geo. I. Morris, John Kelley, gardener to E. W. Clark Alex. Newitt, gardener to H. Pratt McKean Dr. Harvey Roop.

The next meeting is in June.

The Gardener's Monthly,

DEVOTED TO

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EDITED BY THOMAS MEEHAN.

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HINTS FOR JUNE.

FLOWER GARDEN AND PLEASURE GROUND.

A worthy friend of ours visiting Europe last summer, found himself in a beautiful garden owned by one of the chief of England's aristocracy. The gardener was apologizing for the appearance of things, on the ground that "his Lordship" had met with some reverses, and it was thought best to cut down expenses. "We had, said he, always fifty men employed, but we have now to do the best we can with twenty-five."

People often ask the question here why we cannot have gardens as they have in Europe, and some few attempt to have them, without ever giving a thought to the skilful care necessary to keep them in condition. These few attempts generally end in failure, and then we are told the country is not adapted to gardening as England is. Our people are fond of gardening and flowers, but they attempt too much. A place is fitted up with work enough for a dozen men, and after it is done, the gardener is expected to keep things in order with one or two. He is always on the drive. It is as much as he can do to keep things neat, and as to putting forth any superior skill in order to excel in anything, it is impossible. He soon gets into a regular "dog trot." There is nothing especially in which he takes a pride; the true gardening ambition dies out, and he "goes into some other business."

Now one of the first things in laying out a garden should be the consideration how many men we can afford to keep about it—one, two, three—we will hardly say a dozen, for we suppose there are not a dozen places in America where that many are kept. When this is decided on, then lay out and build with regard to that; and we might say, always aim to keep within bounds. If you think you can keep four men, lay out enough work for two, and so on through the whole scale. We have before called attention to this matter at an earlier period of the season; but it is as well that we take a June view of the situation, and unless we are much mistaken, there will be in most places annoyances at hosts of things being but half done, or undone, than we hoped for.

But there are a large number of our readers who are their own gardeners, who keep no one employed, or at least only get a laborer's aid once in a while to see through the rougher work. We would advise these also in the same way to curtail their gardens one-half. The great beauty of one's place is in its *excellencies*. These can never be done when one is overworked.

One always feels with the incoming of June, that something must be said of Roses. There is always a struggle between the tender tea and china roses which bloom "all the time," and the hardy ones which after the glorious June display, produce but a scattering flower or so in the later summer months. If we could only winter out these charming and sweet everbloomers, how glorious it would be. We have stated before in these columns, that if bent down and covered with earth, they will generally do well. But it is often hard to get the branches down without breaking, and besides with all this, they often suffer from the damp. A friend tells us that he has improved on this by burying them *standing up*. The weak unripe shoots are cut off in the early winter or late fall, and a wheel

barrow load of earth put in over and about them. This is taken away early in spring, and the whole plant comes out in splendid order to bloom again in double profusion the next season. We repeat this valuable note here just now, that it may be kept in view to protect them in this way when the season comes round.

Rare roses are increased by layers, buds and cuttings; layers are made of the strong growths as soon as the wood gets a little hard, a slit is cut in the upper side of the shoot to be layered, and it is bent down into rich soil. Everything roots sooner in rich than in poor soil. The cut used to be made on the under side, but they are then liable to break on bending down. Budding is done by taking out a piece of bark with an eye, and inserting it under the bark of another kind and then tied in. It is nice amusement for ladies, and any florist will explain the process to those who do not know. Budded roses are not very popular owing to the tendency of the kinds used for stocks to throw up suckers, which, unless the intelligence of the grower is equal to keeping them off, in the end kill the kinds budded on them. Rose cuttings are generally easily raised by those who know little about it. In proportion as one becomes a skilful florist, the failures to strike Rose cuttings increase. Almost every one who puts in a few "slips" of half ripe wood into a pot of earth, and sets the pot under a shady fence, succeeds; but as soon as he or she knows "all about it," they can't strike roses. Here at least is an encouragement to the new beginner.

Peg down roses where a heavy mass of flowers is desired. The side shoots push more freely for this treatment.

Cut off the flowers of roses as they fade—the second crop will be much better for the attention. Seeds of all flowering plants should be also taken off; all this assists the duration of the blooming season.

Propagation by layering may be performed any time when strong vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at the ends before using, when they will last for years.

Flower-beds should be hoed and raked as soon as the ground dries after a rain. Loose surface soil prevents the under stratum drying out. Peg down bedding-plants where, practicable. Split twigs make the best pegs. In dry weather do not water flower-beds often; but do it thoroughly when it is done. See that the water does not run off, but into and through the soil.

FRUIT GARDEN.

Whoever grows wheat or any other farm crop, knows that the soil will not maintain its fertility without manure. He knows that however rich a virgin soil may be, it cannot long remain rich without his artificial aid. Hence, an annual manuring becomes in time, as necessary as an annual sowing of seeds. How few remember this in orchard management. The tree has to flourish in the same soil for years—or perchance after all the best of the soil has been taken away by regular farm crops, and then comes the "wonder why our *climate* will not grow trees as it once did." Soils cannot well be too rich for fruit trees; not to have manure dug deeply in, but spread on the surface. Possibly we suffer more from the Apple and Plum borer than we one time did, but these are so easily kept out by oil paper about the collar of the tree, that excuses for not raising fruit, on account of injury to the trees by borers, is only exhibiting one's laziness. Fire blight and plum knot may be easily kept under, and the curculio "fixed" by hull-catchers. The codlin moth may be pretty well kept under by persistence in destroying wormy apples, so that with the exception of leaf-blight and injuries from frost, there is really no formidable obstacle to the way of successful fruit growing. Leaf blight is not yet mastered. If it is true as appears probable, that the fungus which produces the effect we see, can only germinate in a high temperature, we may, by taking steps to keep the great reflection from our summer sun parched soil from operating on the leaves, yet master this last great evil.

The evil effects of severe summer pruning on fruit trees are also now clearly recognized. All pruning, winter or summer, is an injury to vitality. Frequently the injury is so slight that the tree soon recovers, and some other advantage being gained, pruning on the whole may be a benefit. It is well, however, to always keep in view the principal that pruning always weakens, in order to do as little of it as possible, consistently with what we wish to accomplish. At this season we may do some good in saving the

necessity for winter pruning, by pinching out shoots we may not want, while they are in a young and immature state.

Grapes first coming in bearing should not be permitted to perfect large crops of fruit while young. It is excusable to fruit a bunch or so on a young vine, "just to test the kind," but no more should be permitted till the vine has age and strength. Vigorous growth, and great productiveness, are the antipodes of the vegetable world. Encourage as much foliage as possible on the vines, and aim to have as strong shoots at the base as at the top of the cane; this can be done by pinching out the points of the strong shoots after they have made a growth of five or six leaves. This will make the weak ones grow stronger. Young vines grow much faster over a twiggy branch, stuck in for support, than over a straight stick as a trellis, and generally do better every way. Where extra fine bunches of grapes are desired, pinch back the shoot bearing it to about four or five leaves above the bunch. This should not be done indiscriminately with all the bunches. Too mutch pinching and stopping injures the production of good wood for next season. These hints are for amateurs who have a few vines on trellises; for large vineyard culture, though the same principles hold good as far as they go, they will vary in their application.

Strawberries, when grown in hills—the most laborious, but most productive method of growing them—should have runners cut off as they grow, and the surface soil kept loose by shallow hoeings occasionally. Short litter, half rotten as a mulch, is also beneficial. Lawn mowings are often applied, but with little benefit. Where they are grown in beds, they should not be too thick, as they starve one another, and the crop next year will be poor.

Blackberries are not always ripe when they are black. Leave them on till they part readily from their stalks.

Currants are so easily grown as to require few hints for their management. If they throw up many suckers, take out a portion now, instead of waiting till winter to cut them away. The Currant borer is a great pest, eating out the pith of the young shoots, and causing them to grow poorly, and bear but small fruit next year. Gummy "flypaper" is, we think, the best thing to catch them.

Gooseberries should have the soil, and even the plants, if it were practicable, shaded a little.

VEGETABLE GARDEN.

Peas for a fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England, where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall Peas to go through free from mildew; and to obviate these drying and and mildew producing influences, they often plant them in deep trenches, made as for Celery, and are then much more successful with them.

Cabbage and Brocoli may still be set out for fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are much in request, may yet be sown. The Curled Indian is a favorite summer kind; but the varieties of Cos, or plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June, some Celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Beans produce an enormous crop in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season. Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Cucumbers for pickling may be sown this month, and Endive for fall Salad set out. Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellises recommended, will be found to do best on stakes tied up singly. It is best to plant a strong pole

as for Lima Beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will, on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede Turnip or Ruta Baga should be sown about the end of the month. A well enriched piece of ground is essential, as by growing fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bonedust, for instance, are superior for the Turnip.

Sweet Potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers. The last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

ON LILIES.

BY P. DUCHARTRE.

Translated from the Revue Horticole of July 16th, 1871, for Gardener's Monthly.

Several of the Japan Lilies which Thunberg had published, are to-day well known in the gardens. These are distinctly characterized, and therefore it is impossible to confound with any of these the Lilium cordifolium, Thunb., which resembles only one species, discovered much later in the Nepaul, by Wallich—Lilium giganteum, Wall., by its particular part, its heart-shaped leaves, its long nearly tubulous and little opened flowers, whose color is of a dirty white, and which have on the outside purple stripes and spots, drawing near together and forming a band on the median vein of the petals; but its smaller size, (1 metre the largest), the generally less number of little opened flowers, its capsules with prominent longitudinal corners, make it a species totally different from the one from Nepaul.

The Lilium speciosum, Thunb., is a magnificent plant, of which Siebold brought later bulbs to the botanical gardens at Ghent, who have since their first flowering, in 1833, made a veritable sensation. The straight and glabrous stem bears alternate oval-oblong leaves, at the base more or less rounded, or short stems with generally five or seven longitudinal nerves. These leaves get narrower near the top of the plant, which has many branches, so that it bears numerous flowers. These are very large reflected, revolute, and the leaflets of their calyx are covered with warts, generally colored pink; more or less brilliant. This superb lily has produced numerous varieties, the flowers of which vary from the deepest pink to a pinkish white—even to pure white, and of which one variety is a monstrosity; with flattened stem, flowering in much greater profusion, but having much smaller flowers than the others. It is to be regretted that the Belgian gardeners, following herein the example of Mussche, the head gardener of the botanical gardens at Ghent, have transferred, without any reason whatever, to this species, the name of Lilium lancifolium, under which name it is more widely known than under its own denomination. The true L. lancifolium, Thunb., has not yet been introduced in Europe. Thunberg, who then had only seen our Lilium bulbiferum, recognized herein, later, a different species, (Trans. of the Linn. Soc., II., 1794, pp. 333.) characterized by its stem of only about 0.33 metres height, angulous, rough or reddish; by its alternate, numerous, sessile, lanceolated and pointed; glabrous leaves, rather small and getting smaller near the top of the plant, where bulblets are produced in the areoles, and by its white small solitary, upright, nearly companulated flower, the leaflets of whose calyx shrink together to a sharp point.

Another Japan Lily, which like the foregoing, has also not yet been introduced in Europe, is

the one which Thunberg had taken first in his flora (p. 135) for L. canadense, and of which in 1794 he made his Lilium maculatum. Later he gave a figure of this plant, (mem. de l' acad. imp, des Soc. de Saint Petersbourg III. p. 204, plate 5, fig. 1.) To judge by this figure and the description to it, the spotted lily is of an average height of about 0.33 metres; its glabrous stem is rounded, striped or furrowed, single to where the flower appears; it has numerous small or middle sized leaves, lanceolated, pointed towards the base, but without stem, they have on the under side several projecting nerves, these leaves draw together to a whirl at the base of the flower. The plant has from 4 to 6 middle companulated sized flowers, which throw the pieces of their calyx a little outward; their color is blood red, colored on the inside with dark purple points and spots. Dr. Asa Gray, (Diagnostic characters of new species of Phaenog. plants, collected in Japan by Chr. Wright. Mem. of the American Acad., VI., p. 434) cites with doubt this plant as a variety of L. superbum, L., which determination it seems to me might be attacked.

The Japan Lily which Thunberg named Lilium elegans (mem. de l' acad. de St. Petersbourg, III., p. 203, plate 3, fig. 2) and which he had first called L. philadelphicum in his flora. (p. 135) and then L. bulbiferum in his memiors of Japan plants, (Trans. of the Linn. Soc., II., p. 333) is also not possessed in Europe. It is, says the Swedish botanist, a plant of about 0.33 metres height, has middle sized, alternate, erect leaves, and ends in a large flesh colored campanulated flower, which throws the ends of the oblong pieces of its calyx a little to the outside. Thunberg compares this species with L. bulbiferum, from which it is distinguished, he says, by its single, smooth, or flower bearing stem, neither striped nor divided by its leaves, more oval oblong, and distanced, and lastly by the pieces of its calyx, which are oval, and not terminating in a point at the base. The figure he publishes gives only a very imperfect idea of the plant. Lilium longiflorum, Thunb., (Trans. II., p. 133, and mem. de l' acad. de St. Petersbourg, III., p. 203, plate 4) is not only well known, but also to-day frequently cultivated in the gardens. It belongs to a group of Japan lilies, with large white flowers, of which Thunb. had already distinguished an other species under the name L japonicum. (See mem. de l' acad. de St. Petersbourg, III., p. 205, plate 5, fig. 1).

It is easy to characterize the L. longiflorum, a plant of a height from about 0.33 to 0.50 metres, whose round glabrous stem has many alternate, thick, lanceolated leaves, rather long for their size, sharp-pointed, having on the underside three prominent nerves, and terminating in one or two (seldom three) large fine flowers, pure white on the inside, and of a white, a little dirty on the outside, pending a little, and having the tube comparatively a little short, this tube enlarges gradually from its base, to become at its end large, quite open, and very showy. Less easy is it to understand that it is the plant which Thunberg has designed since 1783, in his Flora japonica, (p. 133) under the name L. japonicum. We therefore see that in the catalogue of his collection, Mr. Leichtlin indicates by a sign of interrogation, (?) that he is not at all sure of the specific identity of the Lily which he cultivates under that name. Truly the characters by which Thunberg distinguishes his species, lack precision, and the badly executed figure he gives, certainly cannot destroy the doubts his description creates; it is even in opposition in certain respects, with the text, for while it represents the leaflets of the calyx as being oblong, lanceolate, very much and sharply pointed, his text describes the same leaflets as elliptic. The total, after this botanist, the L. japonicum is a plant of about 0.65 metres height, whose rounded glabrous stem has few leaves, about 0.20 metres (Spithamaea) long, alternate, seldom opposite, glabrous, pale on the underside, where five nerves are to be observed. The stem terminates in a single whitish flower, companulated, and about 0.081 metres (palmaris) long. This Lily Thunberg qualifies as being very fine, and adds that simultaneously at Miaco and elsewhere, it is often cultivated by the Japanese as an ornamental plant. These species of Japan lilies which are due to Thunberg, being retrenched, it remains only the one which he compared wrongly to our Lilium pomponium, or from Pompone, and of which more recently Siebold and Facharini have made their Lilium callosum.

While Thunberg at the end of the last century studied and made known the Japan lilies, the French botanist, Andre Michaux, explored the United States to examine their vegetable productions. The results of his explorations are consigned in his Flora boreali Americana, pub lished in 1803. He made us acquainted with many new plants, and added considerably to the already known species of several genus of plants;

but the genus lily he left nearly in its prior state, in fact he mentions in his work only three species; the first one of Linne, the Lilium canadense, L., the second, which had already been distinguished by Walter, in his flora of the Carolinas, published in 1788. I have reference to the charming Lilium Catesbaei, Walter, a plant of the Middle States, already distinguished and figured since 1733, by Catesby. Its stem is of about 0.33 to 0.50 metres height, round, glabrous, and somewhat brownish on the inside; has alternated, distanced, lineal-lanceolated pointed leaves, a little glaucus on the upper side, and nearly upright, and has one large upright flower, of a blood-red color, which turns to yellow towards the middle, where it has many brownish, purple spots; the very much rolled up leaflets of its calyx are undulated at the edges, terminating at the top end in a long point, and also getting very narrow at their base. The third specie, considered new by this botanist, he named Lilium carolinianum. He characterized it by its leaves, nearly all in whorls, without any apparent nerves, and by its flowers, either single or numbering two or three, which are reflected, very much rolled up, of scarlet color, turning to yellow, more or less orange towards the middle, where numerous brownish-red spots are scattered. This pretty Lily, instead of forming a separate species, is only a variety of L. superbum, L.—smaller than the type of this fine plant. It is the same plant which received later, by Poiret, the name of L. Michauxii, (Encyclo. Sup., III., p. 157), and by Roemer and Schultes, the one of L. Michauxianum, (Syst. VII., p. 404).

Summed up, at the beginning of this century, in 1805, when Persoon published the first volume of his Synopsis plantarum, or Enchiridum botanicum, containing all the phaenogamous plants know at that time, the genus Lily was in this work only represented by seventeen species, of which hereby the names belonging to the two sections in which they were divided by this botanist, viz.: First, upright flowers with companulated calyx:

1. Lilium cordifolium, Thunb.
2. " longiflorum, "
3. " candidum, Linne
4. " japonicum, Thunb.
5. " lancifolium, "
6. " bulbiferum, Linne, and C. croceum, a plant from the Dauphine, Switzerland, and which was before and rightly considered a distinct species, under the name L. croceum, by Chaix, in the history of the plants of the Dauphine, by Villers, (1786), and even before that time by Fuchs.

Second, flowers, the leaflets of whose calyx are rolled up to the outside:

7. Lilium Catesbaei, Walter
8. " Speciosum, Thunb.
9. " Pomponicum, Linne
10. " Chalcedonicum, "
11. " Superbum, "
12. " Martagon, "
13. " Carolinianum, Michaux
14. " canadense, Linne
15. " maculatum, Thunb.
16. " Camschatcense, Linne
17. " Philadelphicum, "

Is it necessary to observe that this list would have been augmented by another species, if in 1805, Thunberg had already distinguished his Lilium elegans?

FRUIT CULTURE.

BY J. STAUFFER, LANCASTER, PA.

The remarks made by Tobias Martin, of Mercersburg, at the meeting of the Pennsylvania Fruit Growers' Society, assembled at Reading, January 16, 1873, arrested my attention; the facts stated in his plain practical manner, and his well known success, led to a further inquiry.

In answer to a letter, he writes to me under date February 10, 1873, from which I copy a few statements: "1st. He planted on a very deep, rich limestone loam, composed of decayed vegetable matter. The trees grew finely but did not last.

"2nd. Then on red and seme black slate, which had a soil from six to eight inches deep. This was broken up to the depth of eighteen to twenty-four inches, with two plows, four horses in each, in the same furrow, throwing up the crumbling slate, which gave the field the appearance of a macademized road. These slates crumbled, and by the action of the frost, rain, and sunshine, became a surface soil in a few years of a fine mellow condition, eighteen inches deep, and proved to contain all the elements essential to produce choice fruit of the finest flavor and color, and in great abundance. The wood growth was very strong and solid, the foliage of a dark rich green." He adds, the sandstone soil is hilly, the slate only moderately so. He then continues: "We also have 17,000 trees in an orchard at the base of the North

Mountain, two miles from town. The surface soil is sandy with clay mixed; sand and ironstone on top, and limestone subsoil, with iron ore cropping out in many places. The soil evidently contains iron in large proportion, hence the high color and flavor of the fruit."

In giving the above abstract, I desire to append a few geological and meterological considerations suggested, not so generally understood as the subject deserves. Let us consider the locality, 1st, in a geological aspect. We find that the North Mountain belongs to what is termed the upper silurian, while the village of Martinsburg, but a few miles east of it, is located in the lower silurian. (For a fuller understanding of the terms of upper and lower silurian, consult Dana, or other works on geology.) We can but briefly refer to the facts for a ground work to our comments. At Gettysburg, we find the new red; the cambrian or hilly region interspersed on the border of Adams and Franklin Counties. A strip of limestone on the East, while the Cumberland Valley is limestone, as in portions of Lancaster County. The trap rock ascends and descends the slopes of North Mountain. These belong to the palæ ozoic system, and often connected with iron ore, especially on the margins of the limestone formation. Hence we find this locality peculiar in the close proximity and blending of various geological formations in the soil. The black and red slate mentioned, over a limestone subsoil. Trap or ironstone mixed with sand, iron ore and clay, as mentioned in the other case. These facts are sustained by Leslie and Rodgers, in reference to Mercersburg and vicinity.

The shales or argillaceous rocks, which split in some degree like slate, are so little altered as to be easily reducible to clay by mechanical rubbing and pounding, and differ from schists in being almost entirely argillaceous, and slightly metamorphic, iron and limestone occur mixed with them, but are not essential to form shale. There is a general similarity in the appearance of shale, slate and schists, requiring some study and attention. Pyrites (sulphuret of iron) decomposed, may be altered into alum, *i. e.*, a crumbling rock or shale, thus impregnated with alum. In short, we find a combination of alum, soda, or ammonia in the place of potash, oxide of iron, or of manganese in the place of ammonia, together with carbonate of lime. The whole forming a combination intermixed, which may be called a calcareous, argillaceous, ferruginous and tyritiferous conglomeration, containing all the essential elements of plant food, simply requiring the aid of frost, rain and sunshine to dissolve in and impregnate the soil and bring it to the condition required for absorption by the root-hairs and spungeoles of the plant.

Having briefly considered the geology of the soil, let us consider what this has to do with vegetable growth. It is well established that atmospheric water enters crops through the soil, with which it becomes incorporated. Carbonic acid is composed of say thirty-two parts by weight of oxygen, and twelve parts of carbon. It exists in immense quantity thus combined in nature. Limestone, marble and chalk contain, when pure, 44 per cent. of this acid united to lime, as in carbonate of lime or carbonate of soda. The carbonic acid is present in the atmosphere. This is very apparent by the white film of carbonate on exposing lime water in an open vessel to the air for a short time. Water dissolves carbonic acid according to the degree of the temperature and pressure, taking up about its own volume of the gas. At the freezing point it may absorb nearly twice as much.

So early as 1771, Priestly, in England, found that the leaves of plants immersed in water, sometimes disengaged carbonic acid, sometimes oxygen, and sometimes no gas at all. A few years later, Ingenhouss proved that the exhalation of carbonic acid takes place in the absence, and that of oxygen in the presence of solar light. But according to Sennebier, the oxygen exhaled came from the water in which the plants were immersed. No one now doubts the absorption of the carbonic acid of the atmosphere by foliage. In short, vegetation, in order to flourish, must be in an atmosphere which at least contains a certain amount of carbonic acid, which is absorbed by the leaves, and by the influence of the sunlight decomposed within the plant, and converted into the tissues of the wood, while the oxygen is exhaled into the atmosphere in the free state. Oxygen is endowed with great chemical activity, and performs an important part in germination to develope the buds; it is also absorbed by the roots of plants, and in the process of growth to build up the vegetable structure. The function, so far as known, of free gaseous oxygen in vegetable nutrition, is in aiding to effect the conversion of the materials which the leaves organize, or which the root absorb, into the proper tissues of the growing parts—the opening of the buds, flowers, and ripening of the

fruits. Two opposite processes go on—the absorption of oxygen and exhalation of carbonic acid, and the absorption of carbonic acid and evolution of oxygen. Similar to the respiration of animals, in one case, the other may be termed as the fixation of carbon as woody fibre. Of course this inter-changeable action is governed by the cell action, which counter balance each other in their effects by the atmosphere surrounding the plant. The experiments made during many years are too numerous to mention —often contrary views are had, but the sum and substance is that a slight alteration in cell action modifies the simple elements, and gives character to each specialty in the resultant or product, so diverse in the vegetable kingdom, all however, derived from the few primary elements essentially necessary.

Huxley says: "Life depends on the pre existence of certain compounds, namely, carbonic acid, water and ammonia;" he adds, "withdraw any one of these three from the world, and all vital phenomena comes to an end." I however recognize a *force* existing, independent of all matter—a creative force. It is true this force may not be manifest to our physical senses without the intervention of matter, yet it exists none the less. and like space and duration and Deity, belong to the infinite, which our finite minds cannot grasp. This is that hidden mysterious power that begets and works out the wonderful combinations presented to us in the physical world that surrounds us. Light, electricity and heat, however much we may experiment with, are yet like mind itself, a *terra incognito*, which our savans can see but superficially, and simply note the phenomena resulting—however diversified and unknown, are not the less interesting to investigate, so far as we can go; but let us go softly and reverently. There is a power behind all this that demands our filial fear and adoring love.

To get back to the main subject. In physical geography there is shown what are termed Isothermal zones, having the same mean temperature. We find how much the high mass of the Alleghenies reduce the temperature of the central counties of Pennsylvania, deflecting the isothermal lines to the South. Along the immediate valley of the Susquehanna, these lines curve very sharply northward, and this valley is really warmer than can be represented by the position of these lines. Again, the shelter, like that afforded by the North Mountain from the northwest winds, is a consideration as favorable as is proximity to the Lakes or the waters of the Ocean. To conclude. So many contingencies may exist, that each special result must be traced to the conditions and surroundings. A vast field is open for investigation. I must now abruptly stop. More may be said at a future day.

UTILIZING WASTE MATERIAL.

BY J. JAY SMITH.

In the address delivered before the new Germantown Horticultural Society, and which you have honored by republishing, I took occasion to remark that there were still unsupplied wants of the human family, and instanced the absence in America of purchasable mushrooms, so much employed abroad. It interests me to know that an intelligent gardener has already adopted the idea, and has a mushroomery in successful commencement.

Are there not other things that are also neglected, and which ingenious minds and hands could turn to very profitable account. This idea is enforced by a paragraph from a late St. Louis paper, describing a new industry now in operation there. Some time since, a party of citizens conceived the plan of turning to profit the gas water running waste from the gas works. It contains a large per centage of ammonia. They separated the ammonia held in solution and reaped a great profit. The sulphate of ammonia produced was of superior quality, and the demand exceeded the capacity of the works, while there grew up at once a demand from distant points, including places east of the Alleghanies, New Orleans, and Charlestown, S. C., &c.

This was utilizing waste. Let us see if we can give a profitable outlook for some other person, be he gardener or housewarmer. As I pass a certain large woolen factory, I am often surprised that somebody does not take possession of the waste steam which is continually discharged on the level of the ground, and which creates a cloud sufficiently large to frighten unaccustomed horses as they pass it. Now, Mr. Editor, why should not this warmth be conducted to and through the neighboring tenant-houses; or could not you tell some one how to convert it into grapes by erecting over it a grape house? Again, could not unlimited amounts of saleable flowers and fruits be produced in the unused

garrets of great factories by utilizing the waste steam always discharging?

Is the above a practical idea? If you can say it is so, I will charge nothing for it, valuable as I conceive it to be, *except* a bunch of the first Black Hamburgs that results.

ITEMS OF LATE EXPERIENCE.

BY J. C. JOHNSTON.

CASSIA CORYMBOSA.

In the spring of 1870 I raised from seed a few plants of Cassia corymbosa. So far, have obtained no returns from this shoot within doors, (which was the object in view). But planted out in May, the result is well worth noting for the benefit of all desirous of a choice subject for flower border decoration. Towards the middle of September, at latest, our specimens, some two feet high, and of a graceful, bushy form, are literally covered with a mass of lovely blossoms; pea shaped, and of a rich canary color. And so it remained until cut down by frost in October. For over four weeks it was sheeted over with these lovely flowers, and attracted the admiration of all visitors. I am ignorant of any subject that can rival this elegant shrub for the purpose indicated. As the centre of a bed, surrounded by scarlet Zonales of dwarf habit, nothing could be better. Cuttings root promptly, and any ordinary cultivation will suffice, provided the early growth is not permitted to be lanky, and the roots pot bound.

EUPHORBIA VARIEGATA.

This is an annual of late introduction, more worthy of commendation than some others which have been hoisted into notice. Its merits are confined to the foliage, which is a peculiar shade of green, that sets off a silvery white edge better than any other shade. It reminds one of a silver-edged Zonale, that in old times everybody grew, (the name slips my memory now) but only in the combination of color. This plant grows some fifteen or eighteen inches high, with somewhat slender stem. Three or four ought to be grown together and attached to slender stakes as they grow. It is a pretty contrast among Bouvardias, Gladiolus, and Dwarf Zonales, in a mixed bed, if about midway between the edge and centre.

EUCNIDE BARTONOIDES.

Let those who prize Primula Sinensis of all the shades, and wish to blend with these a similar plant of a fine yellow color, take the hint here offered. It is an annual, but of no use in our climate out of doors. Treated just as one do Primulas for blooming in January or February, it is a real gem, giving a succession of lovely flowers eight weeks or more. A single pot of it in a greenhouse elicits high commendation. The young seedlings must not be permitted to run up spindly, but be developed as much as possible. The shoots should not be trained *upward*, but kept low by attaching to small and very slight stakes, round which the shoots ought to be led. As the foliage is slender, very moderate watering will suffice. There can be no more worthy companion plant to associate with Cinerarias and Primulas than this.

HIGHLY ORNAMENTAL EXOTIC SHRUBBERY.

BY WALTER ELDER, PHILADELPHIA.

Abutilon Thompsonii is one of the most ornamental foliage plants we have for decorating the summer shrubbery. It is shrubbery, grows seven feet tall; the leaves are beautifully marbled with green and golden yellow, and are brightest when growing in full sunshine, and the soil not too rich. The strong growing shoots should have their points nipped off every fortnight, to make the plant a massy bush. It is a greenhouse plant, but is planted in the open ground in June, and dug up in fall before hard frost sets in.

Hibiscus Sinensis.—There are several species or varieties. One bears large and splendid crimson single blooms. Carnea bears buff colored, double blooms, very beautiful. Lutea has yellow, double blooms, very ornamental. Rubra pleno has deep crimson double blooms. Variegated pleno has double variegated blooms. All these Hibiscus bloom the whole growing season. They are hothouse plants, and are planted in the open garden in June, and have a rich appearance all the growing season. They are shrubbery plants, and show well either set out as individual standards or massed in groups. They thrive in almost every fertile soil, and are most ornamental in the hottest weather. They grow four and five feet tall; the points of very rampant growing shoots are nipped off, and the plants grow more bushy and bloom more profusely. They are dug up and set in pots just before hard frosts in the autumn; they are kept in glasshouses all winter.

Lagerstræmia has four species or varieties. Indica has pink blooms; Elegans, pale pink;

Regia, red; purpurea, purple blooms. They all bloom in August and September, and are among the most beautiful of all exotic shrubs. They are tender north of Philadelphia, but are planted out in May and dug up before hard frosts, and set in tubs or boxes, and kept in cellars or caves all winter.

Plumbago capensis is a glasshouse exotic plant, half herbaceous and half ligneus. It forms a shrubby bush thirty inches high when full grown. It is admirable for bedding out when even small; it is set out in May and dug up before hard frost in fall. It will keep all winter in a cellar or glasshouse with its roots in a box or flower pot. It keeps up a continual bloom from June to November. The blooms are light blue—that makes it doubly valuable, as blue is so scarce a color among flowers. It blooms most profusely in not too rich a soil, and in full sunshine.

Night Smelling Jasmine. Is a glasshouse exotic shrubbery plant, five feet high; it is of free growth, requiring the most simple culture, and is admirable for setting out in the growing season, either with its roots in the ground or in a pot; it keeps up a constant bloom from June to November. It is set out in May and dug up before hard frost in autumn. It blooms most freely and grows most compact if the soil is not too rich; and if placed in full sunshine, it will keep all winter in a room or glasshouse, moderately warm. The blooms exhale a delightful fragrance after sunset, or as the poet writes it, "scents the evening gale."

Let us now suppose that there is a summer group of exotic shrubs upon a well kept lawn—let it be a circle or an oval, edged with a dwarf *Arborvitæ* or *Retinispora ericoides*, and kept fifteen or eighteen inches high by annual clipping. Set a stately plant of Lagerstrœmia in the centre, and next to it, Abutilon Thompsonii, then arrange all the Hibiscus and Night Smelling Jasmine around, and Plumbago capensis on the outer edge. There will be ornamental foliage and a splendor of blossom of various colors, all perfumed with the sweet odors of the Jasmine. The plants may all be planted in the ground, or their roots kept in pots or tubs as might be desired.

NOTES ON THE APRIL NUMBER.

BY F. R. ELLIOTT, CLEVELAND, O.

Your April number of *Gardener's Monthly* does me good. Truly to me it seems the best you have issued, and I suppose because it agrees with my own impressions. The old, old story is of my own daily record, and I think of every writer of and operator in horticulture. Those who write, feel that the touching up again of the old, old story, and telling again and again of how to prune, plant, etc., is but a repetition of previous life, and while here and there comes in an item new, yet the whole is so much a repetition of years gone by, that were it not for our innate feeling, that of the readers, there are many young, and who have the, to us, old, old story to begin anew, and that our respect of years gone by of practice, is to them, like life to the new made bride and bridegroom, a lovely start in the production of blooming beauty; surpassing all the world ever saw, we should hesitate to repeat our teachings, or rather records of what we know life's pursuits need and require, and the results thereof. And so with us in practice. As we go out among our flowers, plants, shrubs and trees, note the bursting here of beautiful Saxifrages among a cluster of rocks, the fresh bright colors of Crocus and Lily of the Valley as they peep up amid the old leaves blown over and covering them in winter, as perfectly as does the downy damask of manufacture the early budding of Eve's generation.

But leaving this, you touch me again in feeling when you uphold the Managers of the American Pomological Society in holding to its original and chosen mission, which, crude and imperfect as it may be to-day, has accomplished an advance creditable and credited all over the country, and in its objects and labors covers a specific ground of value and interest to our country, hardly equalled by any other product of rural life productive pursuits.

Your touch on *errors* is one over which your laugh is all right, but you know that we often read proof, make our corrections, but when it comes before our readers, we find the compositor neglected his duty, and we have often worse blunders than your Cryptogamia for *Cryptomeria*. But we laugh over it and say to ourselves, well if the reader knows aught he will see that it is a typographical error, and if he does not know anything at present, it may possibly induce him to wonder what the word means, and so try to hunt it up, failing of which, he writes and asks a question, thus bestirring his brain, when if we or the compositor had not made the blunder, he would never have exerted himself to correct our, to him, error. All of these blunders,

I think, stir up the egotism of humanity, and as oft do good as bad.

The weather is warm here. A heavy fall of rain—more than we have had any one week in four years. Cherry, Pear, Apple and Plum buds and trees all good. Peach buds gone, but trees and wood all right. Grapes, such as Delaware, Telegraph, Concord, etc., appear all right in wood, and the buds of fruit on three-fifths will, I think, prove perfect hereabouts, and ten miles or more east of Cleveland, on the high locations, and twenty miles west of Chicago. My Naomi, Herstine, Clark and Kirtland raspberries, all unprotected, are good to the very tips.

EXOTIC GRAPES.

BY A. HUIDEKOPER, MEADVILLE, PA.

The enquiry of *B.* in the April number of *Gardener's Monthly* as to the relative value of sundry exotic grapes in comparison with the Black Hamburgh, expresses a want felt, no doubt, by many others. It is very desirable our leading cultivators should give the public the benefit of their experience with the varieties of grapes lately introduced Such reports would have the weight of proximate, not absolute authority, sensible readers making the necessary allowance for difference of taste and success in culture.

B. will find in *Gardener's Monthly* for 1862, page 16, "Fox Meadows" opinion of Trentham Black, viz.: that it is inferior in size, and by no means superior in quality to the Black Hamburgh. The opinion of Fox Meadow illustrates the conflict of experience I have referred to. He says, "the Golden Hamburgh will never have the flavor of the Buckland Sweetwater." With me the Golden Hamburgh ripens the earliest of the two. has the most flavor, and the largest bunches, as a general rule; and yet sometimes the fruit of the two kinds will be so much alike, it would puzzle any one to tell the difference. The Golden Hamburgh is a free grower, and does not harden or ripen up its wood quite as well as the Black Hamburgh, and the fruit has so many shoulders or branches, that it requires to be well thinned out and tied up, or the lower berries will be soft and flavorless. It is but a moderate keeper after maturity, but when well grown and ripened, it is one of the most popular and showy grapes for a cold vinery I have yet grown.

The Muscat Hamburgh was accused at first of lacking constitution, and was sometimes grafted on Black Hamburgh to improve it. With me the vine is vigorous enough, but the fruit stems are not stout enough, and the grapes at the lower end of the bunch are smaller and ripen imperfectly in consequence. Being a musk grape, any comparison as to flavor must depend on taste. It is rich, sweet, with a sub-acid base to it, and when well fertilized has a good bloom and is a showy grape. A novice would succeed better with a Black Hamburgh. The fruit ripens soon after Black Hamburgh—early enough for a cold vinery. The Golden Champion I hope to fruit this year.

A revision is needed of vinery grapes by a competent authority. The books give little information about the new kinds of fruit, and when an error creeps in about the older kinds, it is repeated and perpetuated in the catalogues. Mr. Allan's long list gives some information, but lacks systematic arrangement.

There is some confusion of names that needs clearing up. Thus Charles Downing, under the head of "Royal Muscadine," describes the variety largely disseminated as the Golden Chasselas, as is evident from his describing the wood as stouter, and the fruit as somewhat larger than the Sweetwater. Golden Chasselas, Chasselas de Bar-Sur-Aube, and Chasselas Fontainbleau are often given as synonymes, while some authors describe the fruit as quite distinct. Prince, in his catalogue of 1860, makes the Royal Muscadine a synonyme of the White Nice and Xeres, fruits quite distinct from the Royal Chasselas. Allan says bunches of Royal Muscadine sometimes weigh six pounds. McIntosh, page 439, quotes Parkinson as saying the same, and adds, in our day it yields no such fruit—clusters out doors weighing a pound, and in vinery a half more. One would think the identity of one of the most popular varieties might be by this time clearly established.

THE RHODODENDRON IN THE WEST.

BY ARTHUR BRYANT, PRINCETON, ILLS.

In the *Monthly* for June last, your correspondent "D." asserts that Rhododendrons, Azaleas, Kalmias and Ericas cannot be successfully cultivated in the Mississippi Valley, and assigns as the principal reason the presence of lime in the soil. I believe it is true, that many, perhaps most attempts at their cultivation in the West have failed. My observations have not qualified me to speak positively in regard to the unfavorable influence of lime upon plants of this class;

but a brief detail of my experience in the treatment of some of them may, perhaps, show that the case is not quite so hopeless as your correspondent seems to suppose. I may here premise that the water of wells, springs and streams in this part of the country, everywhere contain so much lime as to incrust the inside of tea-kettles.

With the culture of Rhododendrons I have had little to do. Some twenty years since, I received some from Ellwanger & Barry, of species maximum, I think. These perished the first winter, and I concluded, somewhat hastily perhaps, that the climate was too severe for them.

My first attempt at cultivating Azaleas was with two or three plants of A. nudiflora, which were planted in black prairie loam in an open situation. These bloomed two seasons, but never thrived, and perished the third year. Afterwards, along with some evergreens imported from France, I received five or six each of Azalea nudiflora, A. viscosa, and A. calendulacea. These were also planted in open ground, and in like manner perished within three years, excepting one or two of the last named species. The survivors were transferred to the shade of a fence, where one of them has grown to the height of six feet. In the month of June this is commonly covered with a mass of bloom of such exceeding beauty, as to show that Pursh was not far wrong when he pronounced it the handsomest shrub in North America. I have since set several of A. nudiflora on the north side of a fence, mulching them with decayed chips, where they have bloomed and flourished for more than ten years. It would seem that those which perished, did so from exposure to the fierce rays of the sun, rather than from the effects of lime.

Six years ago, I received thirty small plants of the Mountain Laurel, (Kalmia latifolia). These were planted in prairie loam, partially shaded, and well mulched with rotten chips. All lived, and I have not yet lost one of them. They have usually made an annual growth of six inches or more, and the brilliancy of their foliage shows good health. The only injury they have received from the climate was in the winter of 1871-2, when the extreme dryness of the cold weather bleached and destroyed a great part of the leaves on most of them. They have since recovered; and the intense cold of the winter just past does not seem to have done them any damage, except that some of the flower buds appear to be injured.

With some others of the Heath family, I have been less successful. I have three times, to no purpose, tried to cultivate the Mayflower, (Epigaœ). I have several times planted the Wintergreen, (Gaultheria), but it obstinately refuses to thrive, or even live more than two or three years under any circumstances. Six years since I planted twenty-five of the Blueberry, (Vaccinium corymbosum). They all lived through the first year, but began to die in the second. At present only one remains, which is not as large as when first planted.

I once saw the cranberry growing and bearing fruit in dry ground on the side of a hill in Massachusetts. It had been there for years, and appeared to be perfectly naturalized. I took some plants home, but they perished in two years, like those which I had previously tried. Clethra alnifolia, a plant of the same class, succeeds perfectly well.

The intense cold of the winter just past, has done great damage to fruit trees and nursery stock in this region, but it is yet too early (April 1st) to determine the full extent. I have long held the opinion that the greater dryness of the atmosphere is one reason, perhaps the principal, why a given degree of cold is often more fatal to many trees and shrubs in the West than in the Atlantic States. The winter of 1855-6, which was so destructive to fruit trees in the Mississippi Valley, was followed by an unusually dry spring; and the parching winds of March and April appeared greatly to aggravate the injury done by cold. It may be that some of the Heath family cannot thrive in a dry atmosphere.

Is the Azalea arborescens now in cultivation? Torrey and Gray describe it as growing in the mountains of Pennsylvania and Virginia, attaining a greater size than others of the genus, and producing very fragrant rose colored flowers—larger than those of A. nudiflora.

The shoots of the Japan Sophora mildew here every season, so that its progress is very slow. Is there any way to prevent it?

ORCHIDEÆ No. 9.

BY JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

CŒLOGYNE CRISTATA.

This is one of the most lovely of the winter blooming Orchideæ. Of easy culture and taste; in perfection four or five weeks. The flowers are a beautiful white with a blotch of yellow on

the lip; there are usually from four to eight flowers on a spike. I notice Williams in the "Orchid Growers' Manual," mentions a specimen with as many as sixty spikes. I exhibited a plant with ninety-six spikes at one of the meetings of the London Horticultural Society, on which occasion the *Gardener's Chronicle* stated it was the most magnificent Orchideæ ever exhibited. I notice also this winter there have been plants exhibited in London with even one hundred spikes of bloom. There are at present no such large plants in this country, but some large enough to show its great beauty.

There are two points to be noticed by growers of this plant; one is never to fumigate a house without removing the plants, for smoke spoils the foliage; and the second, never to allow the plant to get at all dry, or the bulbs shrivel and never plump up again thoroughly, which is a great check to the plant. Any house which is not allowed to fall below 50° on winter nights, will grow this plant, but it must be shaded from bright sun from end of February until November.

I used to grow them on blocks of wood in England, but find it best in this country to grow in well drained pans, with bulbs raised well above the surface, in a mixture of peat fibre and spagnum moss. By this plan they do not suffer from want of water so quickly as when grown on blocks. This is a charming flower for a ladies' hair, or for using in bouquets, for like most Orchideæ, it lasts a long time when cut.

CROSS FERTILIZATION.

BY REV. L. J. TEMPLIN, KOKOMA, IND.

The question of the immediate effects of the cross fertilization of plants is both a very curious and interesting one, and also a very important one practically. Mr. Arnold's experiments seem to be conclusive that the immediate fruit is effected by the cross, but so far as the experiment with corn is concerned, it is no more than occurs in thousands of cornfields at the West every year.

Every farmer out here knows that if two distinct varieties of corn are planted in contiguous plats or fields, there will be an admixture of the two varieties for some distance, gradually diminishing or receding from the line of separation, till it finally disappears entirely. I have observed such results in, I think, hundreds of cases. The planting of a single row of sugar or sweet corn, or of blue or red corn through a field of common white or yellow field corn, invariably results in a similar admixture for some distance on both sides of the row. Another instance of the immediate effect of cross fertilization is often seen in the common sorgum—the cane and broom corn mixing to such an extent as to greatly injure the quality of both, the cane becoming dry and spongy, and the broom corn losing length and flexibility of brush. That the crossing did not take place the year previous is certain, from the fact that there was no exposure to such fertilizing influences, and of the whole field which was planted with homogeneous seed, none was found mixed but that exposed to the fertilizing influence of a different variety the current year. What the experiment of carefully selecting this mixed seed and planting it would result in I am not able to say, but the opinion prevails among careful farmers that such mixture is not best for seed, hence it is usually avoided in the selection of seed for planting.

I shall look with interest for the results of Mr. Arnold's experiments. A series of carefully conducted experiments in this field, would certainly result in some interesting discoveries. My past observations seem to favor the idea that each grain of corn takes the color of the variety by which it is fertilized; but I cannot, in the absence of careful experiments, speak with confidence, and merely suggest the thought to stimulate inquiry in this direction. If every farmer and gardener would but keep his eyes open to the various workings of nature around him, we should soon be in possession of thousands of her secrets that now lie hid from our observation.

OBSERVATIONS AND RECOLLECTIONS OF NEW HOLLAND.

BY W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

On the way we passed through the town of Tambaroora, where we replenished our stock of provisions and journeyed on. Went along the banks of the Tambaroora creek, where several hundreds of miners were busily engaged at their exciting toil, and on the whole, were mostly successful. Inclining to the south-east, we were fairly on the way, through dingle and dell, over cultivated fields, where pleasant habitations dotted the sylvan plains.

The course followed was on the ascent, which

gradually attained to a height of several thousand feet. In this upper region, the air was sharp, cold and bracing. The atmosphere so clear, from the earth to the heavens, where not a streak or the outline of a cloud intervened in the illimitable space. The scene was like a vast panorama laid before me, where bird's eye views of the distant landscape could be had, which seemed to have neither limit nor end, like the space in the blue ether above. The situation seemed to be one of those which prompts the mind to meditate and reflect, and set in motion speculative thoughts and conjectures—one of those spots which *makes* us think of by-gones. There are times, too, "when pensive thought beguiles a tear," and relieves the heart of its pent up sorrows, when the flood gates of the soul burst open—not with remorse, but with sad regrets for the loved ones, whose "absence makes the heart grow fonder," and whose like we shall never see again.

> "There's a grief that wrings the heart, a grief more sad than death can give,
> From scenes of early home to part, and leave the friends that live."

"Up above the world so high," on the lofty ranges, I met with Delabachea rupestris, or bottle tree, so called from the form of the stem, which singularly swells out in the form of a huge bottle, and contains a gum like substance, which the natives eat. Altogether, the tree has a grotesque appearance, and will claim attention as an arboreal oddity. Several "Bush Apple" trees, Achras australis, from thirty to forty feet high—not edible of course, were in fruit. It is a very thorny subject, more pleasant to look at than to handle. In the natural order Sapotaceæ, to which it belongs, includes the West Indian Sapota, a pleasant and agreeable fruit. When ripe, the flesh is soft, rich and juicy, of the color of an apricot, and about the size of a Golden Russet apple. Bossæa linophylla and B. rufa, two excellent greenhouse plants, with Platylobium murrayanum, Scottia lœvis and S. dentata, elegant little evergreens, were really beautiful. Cold as it was, they seemed to like the *high life* they were enjoying.

The natural picture, as seen from every standpoint, was grand and imposing. The vast area, so varied with a boldness of outline of such a striking nature, as to arrest the beholder's attention, whose enraptured gaze is fascinated with the scene. As I stood on the highest point, looking over the great picture which extended far beyond the eye's range, I felt how applicable was the poetical sentiment:

> "Earth how beautiful! how clear
> Of cloud or mist the atmosphere!
> What a glory meets the eye!"

The descent was gradual to the country before us, which was beautiful and park like, with gentle undulations alternating with forest and moorlands, picturesque ravines and bosky dells, where babbling brooks meander along romantic glens, in the primeval solitudes. Such a blending of beautiful trees, shrubs, and flowers, from the mammoth Eucalyptus, the stately Palms, the beautiful Araucarias, the graceful Alsophilas and Cyatheas, (tree ferns), the elegant Acacias, the many lovely leguminous shrubs, the curious Orchids, epiphytal and terrestrial, the pretty herbaceous plants, and humble cryptogams, could no where else be seen. Here the country was thinly sprinkled with trees, with a velvety turf covering the open glades, where uncounted thousands of sheep and cattle would at no distant time fatten, where now herds of kangaroos were disporting themselves undisturbed.

The Fauna of Australia is as remarkable as the Flora. It abounds in marsupial animals of such singular and abnormal types, as to greatly astonish the *new comer* with their novel appearance, when seen for the first time. For instance, what animals could seem more strangely formed when first seen than the hairy-nosed Wombat, Phascolomys latifrons, or the Derbyan Kangaroo, Helmaturas Derbyanus, especially if near enough to see the fumaks carrying their young families in the pouches beneath the abdomen. The little ones seem very cosy when peeping out of the comfortable receptacles nature has provided for them. There is another marsupial which lives in the trees, and is as expert a climber as either monkeys or squirrels, namely, the Vulpine Phalanger, or Phalengista vulpina. Its food consists of leaves, bark, buds, fruit or seeds, which it gathers *only* up the trees. I never heard of its having been seen on the ground, although I see no reason why it should not when in its nocturnal movements seeking for food. It is rarely seen by daylight, as it keeps concealed in the hollow trees. The noisy parrots and screaming cockatoos are screeching and yelling at all times, their abominable din never ceases until darkness puts an end to their noisy clamors. "Pretty Poll" and "Pretty Cockatoo" are not there regarded as household pets by any means. All the feathered tribe, although

so beautifully plumaged, are wretched songsters indeed.

It is said of Linnæus, that he wept when he came suddenly upon a wide expanse of Golden Furze, Ulex Europea. The heart of the writer has been often moved with like familiar scenes, scenes which will never be erased from memory until life's last lingering hour obliterates all recollections. Here Epacrises, in place of the Golden Furze, presented in some respects, a similar scene, and covered a wide expanse o rising ground. The flowers are beautiful, and are produced on pretty evergreen shrubs, growing from two to six feet high. They cover immense tracts of land in the untrodden wilds of Australia. Could the gentle Linnæus but have seen them, the joyous tears would have glistened on his honest cheeks as when he saw the field of Golden Furze.

Next to Ericas, Epacris rank high among the exquisite beauties which adorn the conservatory. They are gems of the greenhouse, and like diamonds, and rubies among precious stones, are deservedly admired for their rare beauty and intrinsic value. The most delicate kinds require the highest horticultural skill to grow and flower them successfully in this country. Epacris impressa alba, an excellent free flowering kind, is grown largely in the neighborhood of Boston for florists' uses. For instance, at the nursery where I am at present engaged, (W. C. Strong's, Brighton, Mass.) we cut twenty-three thousand five hundred sprigs during Christmas and New Year's anniversary. Of the more choice and delicate kinds, a few will suffice to mention, namely, Epacris grandiflora, scarlet; E. nivalis, white; E. impressa, crimson; E. variabilis, pink; E. purpurescens, purple; E. paludosa, flesh colored; E. campanulata, deep blush; E. alba odorata, white, and very sweet scented. In Australia, their native home, they are as frequently met with as are the Furze, or heath covered moors of Great Britain. I remember some years ago, when I had charge of Wade Hampton's estate, near Columbia, South Carolina, having some handsome Furze bushes, which blossomed annually in front of some of the finest English Laurel I ever saw, and that is saying a great deal, as England is justly famous for them, and also the Furze. I have no doubt but that the native born Anglo-Saxon of Australia, will at some future time, regard his Epacris covered hills with the same veneration the Scot does his "bonny Highland heather."

Happy are the people of whatever country or clime, whose simple tastes are so cultivated as to see a beauty in the humble little flowers of their native homes, and whose souls are in raptures when they, perchance, meet with them in some distant land. Such happy reminders of the past often occur. The mute appeals for admiration and love the little floret makes as it almost beseeches us with its sweet humility to caress and regard it, as a type of His goodness, who, in the economy of nature, created it and us for some undoubted good. Only think what a gloomy and cheerless world this would be if there were no flowers. In an event so dire, of course there would be no fruit. Neither "Flora," "Ceres," nor "Pomona" could offer their bounteous gifts to unhappy mankind. Thank God it is not so, for we are promised that "while the earth remaineth, seed time and harvest, cold and heat, summer and winter, and day and night shall not cease."

As I have wandered personally and figuratively among the Epacris bushes, both here and in Australia, I must return again to the many readers of the *Monthly*, and give them a pen-picture of the gigantic climber, Cissus antarctica, or the monster vine of New Holland. Imagine before you a gigantic vine, whose deadly grip had destroyed many a goodly tree of fair proportions. Its appearance was truly remarkable, not only on account of its enormous length —six hundred and seventy feet, and in circumference at the base, three feet nine inches, but from the manner of its growth. Originally, at some distant period, it had undoubtedly climbed up the trunk of a large tree, and whose close embrace had death in its coils, as it silently wound around its victim, anaconda like, and pressed it to death. Literally, it was an arboreal thug of the forest.

I will endeavor to draw the outline sketch as clear as my pen can trace it. Fancy then you see a smooth and lofty column, nearly two hundred feet high, spiral in form, (and like a mammoth cable, strong enough to moor all the fighting ships at the Battle of the Nile) and from the summit of which, stretched in an horizontal line, its huge continuations for more than one hundred and thirty feet, without any support, until it reached a Eucalyptus tree, on which it rested and encircled the trunk several times, and then threw out a number of stems, which

seemed to be taking possession of all the trees in the neighborhood of its wanderings. It was the opinion of an intelligent shepherd, a burly Yorkshire man, who directed me to the spot, that the vine, having strangled the trees which formerly supported it, had perished and wasted away, and so left it standing as I saw it, a marvel indeed. Without making any pretentions to a knowledge of botany or nomenclature, the shepherd had named it "The Devil's Cork Screw."

Not far from the monstrocity I have depicted, was a fine specimen of Callistemon salignum, or paper bark. It is a remarkably graceful tree, so like a weeping willow in habit of growth. While young the leaves are rose colored, and when seen at a distance, have the appearance of flowers. Of very striking appearance, and growing contiguous, was a round headed bush of Grevillea rosmarinifolia, of about ten feet high. It is an elegant shrub. Pimelia drupacea, or cherry fruited Pimelia. It is a curious evergreen shrub, and produces a mass of pretty white flowers, which are succeeded by a crop of fruit, (not very edible of course) very much like Black Heart Cherries to look at.

As we journeyed onwards, the scenery assumed a varied aspect, while the vegetation also seemed in unison with the savage scene. Huge snow white blocks of quartz lay in unshapely masses on all sides, and rendered locomotion very difficult and fatiguing. Of the extensive order Geraneacea, I saw but two species in New Holland, namely, Pelargonium inodorum and P. austral. The former a small light purple flowering kind, and the latter rose colored. When growing in masses they had a pretty effect. There are nearly three hundred species indigenous to Africa, and are mostly found about the Cape of Good Hope, where I was so captivated with the flora, especially the Ericas. To examine their elegant flowers afforded me a never ending pleasure, when rambling among them. I feel to regret their absence now, whose exquisite charms, so dear to remembrance, I shall never see again.

(*To be Continued.*)

EDITORIAL.

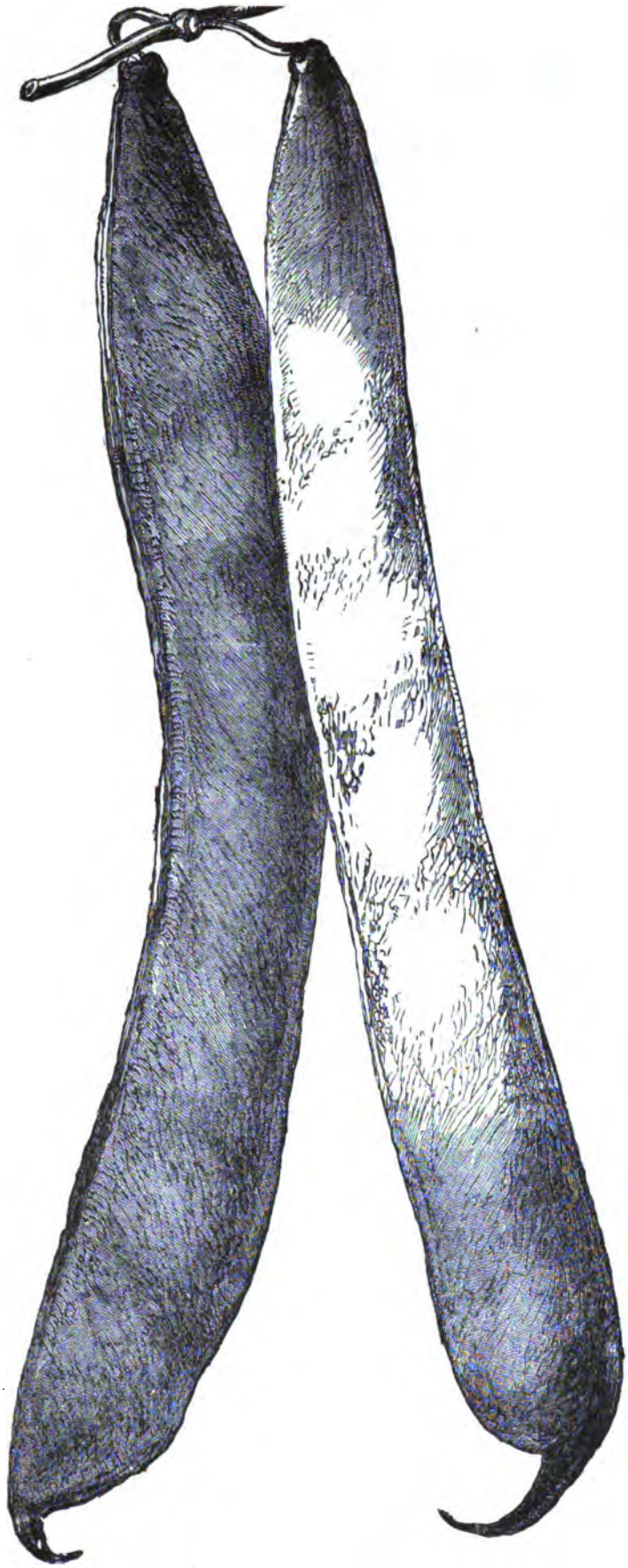
THE SCARLET RUNNER.

It has always been a matter of surprise that the Scarlet Runner has never obtained a foothold among the cultivators of garden vegetables. In almost all portions of Europe, it is one of the most esteemed, and we think there is scarcely a garden where any fair collection is grown, that this one is not found among them. They are used as much as our dwarf beans—broken or cut to pieces, and eaten in the green podded state. On rich ground they have very thick succulent pods, much more so than any dwarf bean, and the flavor is very different from them. The plant in fact, belongs to another species, *Phaseolus multiflorus*, although until the last century it was generally believed to be a form of the East Indian or dwarf bean, *Phaseolus vulgaris*. This is from the warmer parts of South America.

The flowers are of great beauty, rivaling the color of the brightest scarlet Zonale Geranium, and give more gaiety to a vegetable garden than any plant known. It is a great fashion in some parts of England to make them border the garden walks. Very light poles are employed—not thicker than broom handles, and two are attached together somewhat like the letter X, only that the point of crossing is near the apex. Another pair is made, and one set at the upper line of the walk and one at the lower. Then a horizontal series is fixed from the points where the pieces cross, and the whole when finished, very much like a common "saw buck" or "wood horse." The frame is then filled by numerous poles, set about one foot apart, and all in the X manner. This is immensely strong, takes little time, allows of the use of lighter material than our lima bean does, and when in bloom, gives a solid sheet of scarlet flowers, which any one who once sees will never forget.

We cannot tell why it has been so much neglected with us. It does not come into use quite so early as the dwarf bean, but we think would be in before the lima. It is likely many would prefer the lima in an absolute choice between one and the other; but we all like variety, and do not want to live on one thing, no matter how good it may be.

The old time beans were considered good at six inches long. The one we take to illustrate this article, is a great march in the way of improvement. It is called *Carter's Champion*.



HEATING GREENHOUSES.

The many articles which have appeared on hot water heating, boilers, and so on, during the past year, show how great is the interest in the question of heating plant structures. And it is not to be wondered at when it is remembered that it is a very poor garden which has no greenhouse; and that greenhouses, with their cheerful winter flowers, give more pleasure than half the best summer gardens going.

Many more, very many more greenhouses would be built, and the pleasures of gardening be considerably increased if it were not for the fear of heavy cost in the building and in the heating apparatus. For those who have the means to enjoy gardening on a very large scale, and whose greenhouses are proportionately extensive, there will be no question about how to heat them. Hot water will always carry away the prize. It is so neat, and the pipes can be carried anywhere where it is most convenient, that houses may be built on almost any plan desired. But where hot air is to be used, there are only certain forms to be employed, as the heavy flues cannot be carried about here and there as hot water pipes can. Again, unless the builder or planner is very well versed in the knowledge of draughts and currents, it is almost impossible to warm a house well and satisfactory if with flues of any considerable extent.

But all this is very different with small houses. If properly constructed, and the laws of heat circulation well attended to, hot air will be found very satisfactory and much cheaper, both in the first cost and in the subsequent maintenance. We need not go over here with what has already been stated in this magazine, that it takes a bushel of coal to heat a house by hot water to the same temperature that three-fourths of a bushel will by hot air; and though this is more than made up in a large house by the greater distance the heat can be conveyed, and by other advantages recently well explained by our correspondents, there are few corresponding advantages in a small house.

But much as the advantages of hot air in economy in a small house is conceded, not near as much is made of it as might be. Mr. Strong once pointed out, in one of the most valuable articles we ever published in the *Gardener's Monthly*, how heat instead of escaping through the apex of the house, as most commonly it does, can be made to a considerable extent, to pass into one of a higher elevation, and thus be used again instead of wasted; and we have on several occasions, shown how vastly superior are pipes made of fire clay over common brick flues. The thinness of the material—one inch, over the two and a half inch of brick, makes all the difference, and for just the same reason that a common brick flue consumes less heat than a column of hot water. That these pipes will crack is true, and so will brick flues sometimes. The pipes have the advantage in this that a wire can be firmly put round each piece, and then no matter if they do crack there is no escape of gas or smoke, except after a fire has been suffered to die entirely out, and the pipes allowed to become damp and cold. In this respect the pipes have the same objection as flues—the same, no more.

As to the combined economy of these suggested plans, there is now no question. We know a set of small houses built somewhat on Mr. Strong's principle, which occupy three thousand square feet of ground, and are heated by one hundred and sixty feet of fire clay pipe, the most of which pipe have seen fifteen years of constant service. These houses cost only $1000, and have had a profusion of flowers all winter, including such flowers as Stanhopeas, Phajus, Cypripediums, Poinsettas, and other great heat lovers, at an expense of only about thirteen tons of coal, and this too during one of the most terrible winters on the coal bills under record. We venture to say that no such results could be had with any set of houses built on other principles than Mr. Strong's, or even on Mr. Strong's principle, if heated in any other way than by fire clay pipe.

PLANTS IN SLEEPING ROOMS.

A great deal of nonsense originates with people who think but do not observe. They take hold of what is really true, and imagine a great deal more, by means of which they build up a tolerable "bugaboo," at which people who trust to the learning of the builders, get very much frightened. Thus it is known that plants give off carbonic acid gas at night, and straightway arises a commotion as to the danger of having them in sleeping rooms at that time.

The quantity which they give out is so small that it does not compare in a slight degree with what human beings give out. We venture to say that a sleeping infant would exhale more carbonic acid in one night than a hundred pot plants, yet whoever suggested that the health of a mother was seriously affected by the baby rest-

ing in her arms? As to the injury from vegetation, those of us who have had to sleep at various times in woods, with but green branches for a pillow, and the sweet wild green grass instead of a feathered bed, know well after a few days of such experience, that it is the most health giving of all luxuries, notwithstanding the "awful" amount of carbonic acid so much vegetation must give out every night. Surely if this is so injurious it ought to affect the lungs more especially than any other part of the system, yet the experience of army life is abundant that many a person who with lung disease, supposed he might as well "die for his country" in the woods and fields as "on a feather bed," and went into the war of the rebellion, was, if not wholly cured, much ameliorated by thus sleeping out amidst the carbonic acid of open air vegetation.

Still facts and figures please most people. Gov. Holt addressed a letter to Prof. Kedzie of the Michigan Agricultural College, recently, on the subject. The Prof. replies at length. We make the following extract:

"Not to leave this matter in the condition of mere conjecture, I have gathered and analyzed specimens of air from a room where the influence of growing plants would be exhibited in a greatly exaggerated form. Thus, instead of taking the air from a room containing a few plants, I gathered it from the College greenhouse, where more than 6000 plants are growing. I gathered the air before sunrise on the mornings of April 16th and 17th; the room had been closed for more than twelve hours, and if the plants exhaled carbonic acid to an injurious extent, the analysis of air from such a room would certainly disclose this fact. The three specimens of air gathered on the morning of April 16th, from different parts of the room, gave 4.11, 4.00 parts of carbonic acid in 10,000 of air, or an average of 4.03 in 10,000 The two specimens of air gathered April 17th gave 3.80 and 3.80 parts of carbonic acid in 10,000, or an average on the whole of 3.94 parts of carbonic acid in 10,000 of air; while the outdoor air contains 4 parts in 10,000. It will thus be seen that the air in the greenhouse was better than "pure country air." This deficiency of carbonic acid was doubtless due to the absorption of carbonic acid and consequent accumulation of oxygen during daylight, since the windows of the greenhouse were closed day and night on account of the cool weather.

To ascertain whether the air of the greenhouse had more carbonic acid by night than by day, I gathered two specimens of air in different parts of the house, at two o'clock P. M., April 17th. These gave 1.40 and 1.38 parts of carbonic acid in 10 000, or an average of 1.39 parts, showing that the night air contained more carbonic acid than did the air of day.

Now, if a room in which were more than 6000 plants, while containing more carbonic acid by night than by day, contains less carbonic acid than any sleeping-room on this continent, we may safely conclude that one or two dozen plants in a room will not exhale enough carbonic acid by night to injure the sleepers.

It is so easy to be deceived by a name! I lately saw an article showing the beneficial and curative influence of flowers in the sick room. Instances were related where persons were cured by the sight and smell of flowers, and without question their influence is good. Yet flowers exhale this same carbonic acid both by day and by night! The flowers, by their agreeable odor and delicate perfume, impart an air of cheerfulness to the sick chamber which will assist in the recovery from lingering disease, notwithstanding the small amount of carbonic acid which they constantly exhale.

The presence or absence of carbonic acid is not the only question in regard to the healthfulness of plants in a room. The state of moisture in the air of the room may become an important question, especially in the case of persons afflicted with rheumatic or pulmonary complaints. But I will not take up that subject.

Very respectfully your obedient servant,

R. C. KEDZIE."

EDITORIAL NOTES.

DOMESTIC

The Amenities of Horticultural Literature.—Mr. M. B. Bateham, in the *Prairie Farmer*, has an article on this subject with which we cordially agree. He says there has been a marked improvement in the tone of papers which appear in horticultural journals of late years. That editors and correspondents write more friendly, and with a better spirit than they ever did. There are yet some exceptions to this he thinks, but on the whole there is a great improvement. We like to see this encouraged. A man's motives may be bad, but then again they may not be. Let us always give those who oppose us the benefit of the doubt.

Dahlias. Philadelphia has an amateur who has stuck to the Dahlia through all its varying phases of popularity, and now that it is regaining high favor with all classes, he feels justly proud of his faithful love. He raises annually a large number of seedlings, and many of them have proved superior to either French or English varieties. Mr. Gerhard Schmitz deserves the thanks of all Dahlia lovers for his persistent and successful efforts for their improvement.

Does Sap Freeze in the Winter? We find in a recent number of the *Rural New Yorker*, an article by our friend J. R. Temple, on the *Gardener's Monthly's* recent article on this subject. As we like to have all that can be said for or against a position, set side by side together, we give the major part of the communication:

"I regard the editor of the *Gardener's Monthly* as one of the ablest vegetable physiologists living; but he is not alone in holding and teaching the doctrine that a temperature of 32° cannot be endured by a plant and the life of the plant be preserved. But notwithstanding these high authorities, whom I delight to follow in most things, on an appeal to the plant itself, which they have encouraged me to make, I feel compelled to accept the statements of the plant in opposition, as it appears to me, to their teachings.

Prof. Leconte teaches that the sap of trees and shrubs does become frozen without the slightest damage to them. Pictet and Manrico, of Geneva, made observations on a horse chestnut tree from 1796 to 1800, which developed the fact that there was not more than 0.04 of a degree's difference between the temperature of the centre of the tree and the atmosphere surrounding it. In 1826, Holder found trees below the freezing point and in a congealed state, without injury to their vitality. Many other experiments, made by the most able and careful observers, go to prove the same point. During the past winter we have had a temperature as low as 33° Fah. It froze through thirteen-inch brick walls. Are we to believe that the sap in an apple tree three inches in diameter could resist such a degree of cold and not congeal? Even the branches and small twigs endure it and live. Now one of three things is true: 1 The sap does not freeze at all, or, 2. it freezes without injury to the plant; or, 3. there is no sap in the tree or plant at the time of the cold weather As to the first, we have the evidence of our senses that it is frozen. By chopping into a tree during a long continued spell of very cold weather, it will be found that the cells of the wood are filled with small particles of ice. A turnip may be taken from a pit so hard that it can scarcely be cut with a knife; by scraping, it will be found full of icy particles. That a tree or plant can survive this freezing is evident from the fact that forest trees do survive the cold, even of high northern latitudes. As suggested by the correspondent of the *New England Farmer*, the roots of vegetables do freeze and survive. That they are frozen is evident from the fact, as I stated above, they are found full of ice, and if one is taken and thawed in a warm atmosphere, or in tepid water, its texture will be destroyed and it will be soft and spongy; while those left in the pit till warm weather will live and grow. I have observed this phenomenon often. Whether there is less sap in a tree in the fall than in the spring, or whether it is only less active, I am not able to say; but any one who doubts the presence of sap in sufficient quantities to freeze, may easily satisfy himself of its presence by filling his stove with green wood on a cold day and sitting and listening to it frying, provided he can get it hot enough to fry. That a frozen turnip is full of sap is evident from the fact that a frozen turnip is as heavy as the same not frozen; and when thawed in a warm, dry atmosphere it becomes a mere sponge saturated with water, and if left alone it would have grown."

It is hard to tell what our friend is driving at. He tells us distinctly that a turnip frozen, when thawed in a warm, dry atmosphere, becomes a mere sponge saturated with water. Of course we all know that one "not frozen" does not come to this condition under the same circumstances. We suppose Mr. T. means to say that the frozen turnip lost its vitality when it turned to a "mere sponge," which is exactly what we contend.

Trees Given to the Government. Much talk is made in the daily papers about a gift of 30,000 seedling Scotch Pines by an European firm to the American Government. The Government "proposes to distribute them at once in order to ascertain whether or not they are adapted to extensive planting in the West." It is rather strange that the "Government" should thus want to "ascertain" a fact already well known to thousands of Western men, who well know that the Scotch Pine does as well as any other of the hardy pine trees. If the "Government" will write to Douglass, Bryant, or any other of the many pioneers in Western planting, it may find all it wishes to "ascertain" about the matter. The ignorance displayed in this matter explains many of the mysteries of the few years past. Not long since it was proposed by an act of Congress, suggested it was said at Washington, to allow trees imported by amateurs to come in duty free, while all imported by nurserymen were to pay duty. We *believe*, for no one knows but a few hours at a time whether a law is or is not—that this proposition never became the law. But supposing it was made in good faith, it must have been through a belief that Western nurserymen were a poor set, and need not be considered or consulted. We may say for the information of the "Government," that Scotch Firs, Larches, and many other timber trees are

raised in the West by the *millions*, and we have no doubt if the "Government" will give as much for 30,000 as it paid freight on this gift, and distribute them in small lots, saying with each as it will do with these, "raised by ——— Ills.," a "gift" of 30,000 from Illinois will soon be forthcoming.

At first we were disposed to think this "gift distribution" would do no harm at any rate—that it might encourage many to experiment who would not otherwise ever be interested, but on second thought it will probably work the other way. Packages will be sent from now to middle of June to hundreds of persons who care little for them, and the result will be they will nearly all die, and then we shall have newspaper paragraphs by the score that "the Scotch Pine has been extensively tried and found to be utterly unadapted to the Western climate."

An Incident in the Life of Dr. Torrey. We do not know how true the statements in the following paragraph from a daily paper may be, but similar trifles have fixed the bent of many a distinguished man:

"The late Dr. John Torrey, the distinguished scientist, is said to have first acquired a taste for scientific pursuits in the following remarkable manner: His father held some official station which required him to visit the prisons of the city of New York, and the lad frequently accompanied the parent on these tours of inspection. In the old State Prison, which at that early day was somewhere about Twenty-third street, and situated in the country, they found a man in the office of the superintendent who had been condemned to serve out a short term, but was generally believed to have been innocent of any offence. This prisoner was taken into the office to keep the books. He was a man of learning, and especially a fine botanist. Whenever young Torrey appeared at the prison the book-keeper would point out from the window some plants growing in the vacant lots opposite, and ask the boy to go and fetch them; the two then sat down in the office to analyze and dissect the specimens, presenting the curious spectacle of a prisoner in convict's costume teaching a well dressed boy. The lad never forgot the lessons, and from the taste thus acquired dates his application to the study of botany, in which science he was destined to achieve the most distinguished success."

The Delaware Peach Crop. The correspondent of the Philadelphia *Public Ledger*, gives hope of a fair average crop—probably 3,000,000 baskets may go forward. Strawberries will be enormous; and Asparagus is being raised in immense quantities over other years. Much difficulty is however felt in marketing, and prices will perhaps rule low.

P. O. Rulings—with a Crooked Ruler. And now our poor publisher is in a quandary. He has to prepay postage to Holland, Belgium, Australia, and South America, in which distant places he has a fair list of subscribers. This has been 72 cents each per year. Now the "ruler" decides this is wrong, and 96 cents is the "legal fare." He collects from his subscribers in advance, resting on the good faith of his respected Uncle at Washington, and of course will rather go to sleep and dream over being plundered by the Government, than enter into distant negotiations with numberless subscribers for the paltry sum of each, but a great deal to him on the whole.

It may be that one of these days the postal wheel will turn round, informing us that two cents is all that is required for these distant postages, when we shall have already collected ninety-six cents from our unfortunate subscribers. Well we know that there is a "conscience fund" always open for us where we can return all we thus unwittingly rob others of; but unfortunately we are not in a position to vote ourselves "back salary pay," when the joke is on the other side.

American Pomological Society. The coming quarter centennial of the American Pomological Society, at Boston, will undoubtedly be a brilliant feature in the annals of Pomology. Besides what the circular of the Society, published in another column indicates, we hear that the distinguished scientists, Professor Gray and Agazzis, will take part in the proceedings. There will be an additional programme of particulars issued next month.

Horticulture and the Centennial. The Pennsylvania Horticultural Society is working energetically for the success of the Centennial. The early neglect of horticulture by the Centennial Committee, of which we complained in our past issues, has been tardily atoned for by the appointment of a committee. We do not know any of the gentlemen named except Col. Furnas, of Nebraska, but if they are all like him, they are the right kind of material to make a committee out of.

SCRAPS AND QUERIES.

GREEN ASPARAGUS.—A Cumberland County, Pa., correspondent writes: "I have quite a number of seedling asparagus in my lot of plants growing. It maintains a yellowish white all through. Do you think it worth separating and placing separate to raise a new variety? Please give me your views."

[All plants, and animals too for that matter, produce what are known as *albinos* at times—that is pale forms in which the color is wanting. In asparagus this has long been known, and the pale form is the "green top," while the original, or rather most natural, is the "purple top." Albinos are all less vital than the normal forms, and are generally the first to disappear. Hence it is not often that the green top is seen in cultivation. This one before us appears to be only an albino—the usual "green top" asparagus. The continual disappearance of the green top is also aided by the fact that the asparagus plant being dioecious, cannot fertilize itself. Pollen from the "purple top" would therefore be continually getting to the "green tops," and the seedlings would not come like the originals. It is impossible therefore to reproduce any asparagus true from seeds, and hence what are called "new varieties" have no real existence. By selecting a few dozen plants of the "green tops" however from a seed bed, and planting them by themselves far away from any other kind, the *race* of albinos may be preserved, and though the plants among themselves will vary, and there is no way to make any variety keep itself pure, the *race* will continue. Whether or not the plants in this case will be worth selecting and preserving will depend on taste. As a rule we think the "purple topped" shoots are preferred, though some may like the green ones.]

POSTAGE ON SEED PACKAGE.—*R. G., White Willow, Kansas*, says: "Some time since I had to pay thirty-six cents double distilled extra postage through the neglect of a correspondent, and through no fault of my own, the authorities thus punishing me for another man's fault. Now I have a package of seeds from another friend, on which he has innocently placed twelve cent stamps instead of two as he intended. I ask our postmaster for the return of fifty cents overpaid, but he only laughs at me. Can I not recover? I suppose you in the East with so much business, know how to go about these matters. It is small, but I suppose there is a principle involved which I should be glad to understand."

[All we have to say is, "poor fellow!"]

RAISING SEEDLINGS OF TREES, FRUITS, &C.—Under this caption, "J. M.," of Philadelphia, furnished a very interesting article for the *Monthly* of September, 1871, (for which he will please accept my thanks) from which it is evident that he knows a thing or two about seedlings. Would he be so good as to give his experience and practice with evergreens the first winter—how he obviates the throwing out? Mere covering with litter on the approach of frost, does not seem to be effectual with me.—HORTO.

ARTICLES ON HAND.—We have several excellent communications on hand, and trust our friends will not lay aside their pens when they do not immediately appear. We like to have a lot on hand, as it gives us a better opportunity of varying the contents of each number—a great point in giving interest to the *Monthly*.

MANAGING YOUNG NORWAY MAPLES—*I. H., Old Westbury, L. I.*, says: "We have obtained so many useful and profitable hints through the *Gardener's Monthly*, that we would like to know thy experience in the management of the Norway Maple in the nursery rows. Several kinds of shade trees are greatly improved by cutting them off after one year's growth in the rows; but we cannot decide from the short experience we have had whether Norway and Sycamore should be so treated. We think that they had better remain for two or more years until they are well rooted before they are cut, and if those that are thrifty and straight ought to be cut back, then we wish to know. If thee, when thee replies, would give thy views, if thee has time, we will be much obliged, and will, if desirable, at a leisure season, give our ideas of trimming trees in the orchard and nursery for the *Gardener's Monthly*."

[Whether it is best to cut back the young trees depends on the reason for cutting back, of which there are two. Sometimes it is necessary to cut back somewhat to save life. The roots may be dry, or there may be proportionately but few roots. In this case we cut back young plants the first year, or very often the second year. For this reason, however, we seldom cut much more than the young twigs, leaving a good proportion of the leading stem. To cut back for making a straight stem, we leave the whole matter until the plant has made an abundance of roots, and then cut back pretty close to the ground. The Norway and Sycamore will generally bear this after the first season's growth, though sometimes it is best to leave it to the second. The notes on trimming orchard trees will be very acceptable.

Disease in the Deodar Cedar.—An Alabama correspondent writes: "We have in our yard the most beautiful ornamental tree I have ever seen; about thirty feet high, rich in foliage and graceful in form—a *Deodar Cedar*. Some three or four weeks ago, it began to show a deadness in one of the limbs. Since then several other limbs are affected, and all the foliage is beginning to turn of a brownish tint, and to fall off. My wife and I are much distressed about it, and fear we will lose our pet tree. Can you tell me what to do for this sick tree? What is the matter, and what treatment shall we bestow? Something must be done or our favorite will die. Will you have the kindness to tell me what is to be done?

[Never having seen or heard of any such disease in the Deodar Cedar, we were at a loss to know what reply to make to this when it was first received, but we have since learned that a small borer attacks the trees in the South, and this is probably what is the matter in this case. Specimens of the diseased part would be acceptable.]

Grafting Mice Girdled Trees.—Mr. Adam Deisher, of Tuckerton, Berks Co., Pa., leaves at our office specimens of trees which had been completely girdled by mice, and yet saved by taking young pieces of the same tree, and grafting them in connecting the upper and lower edges of barks. This plan has been long known to our readers, and is generally practiced by them when they desire to save valued trees. But Mr. D. has our best thanks for calling our attention to it, as these things need referring to again and again. There is one original feature in Mr. D.'s plan. The connecting piece, after being shaved on its inner face, and cut the exact length, is nailed in instead of being tied. It is therefore firmer, and we think this an advantage.

The Blood Leaved Peach.—In a recent number we stated that the blood leaved Peach we had seen from Mississippi, had small flowers, while that described by a recent correspondent had large flowers. Since then we have seen the same plant flower again. It has large flowers. We were mistaken: *there is but the one kind.*

Transparent Blue Wash.—A correspondent sends us a sample of blue wash for shading greenhouses in summer time. General Pleasanton's paper has made blue popular, but those who think they are following him forget that he only used blue glass in alternate strips with common glass. In the remarks made on his paper by those in Europe who have criticized it, this fact seems to have been overlooked. Although we have not been able to feel that the crops in General Pleasanton's greenhouse was wholly due to those alternate strips of blue, yet it is but justice to his paper to notice the weak point of his critics.

In regard to blue powder, we can, of course, offer no opinion. Most plant-houses in America require shading of some kind during the hot weather, and it is just possible that this may do as well as the Rye flour, and whitening commonly used. These things are not well understood yet, and we are glad of any experiment in that direction.

In most washes used, a difficulty is found in either keeping it on long enough, or getting it off when not needed. Our correspondent says his wash will come off when hot water is used.

Lawn Grass.—*B., Pittsburg, Pa.*, says:—"I want to sow a small piece of lawn this fall, and on consulting authorities I find three things named by different writers—mixed lawn grass, rye grass, and green grass—which do you regard as the best?"

[Mixed lawn grasses are mostly the other two, with a little sweet vernal or other English grasses mixed with them, and which soon die out in a lawn in our climate. Rye grass is rather coarse, and it will not bear to be cut very

close by a lawn mower, or it may die out under a very hot sun; but it comes into "green" so very early in Spring, and has such a cheerful shining tint, that we are very partial to it. Green grass stands the vicissitudes of our climate better than any grass, and makes a capital bed for a lawn mower. A mixture of the two would not be unobjectionable, for if the close mowing did injure the rye grass, the green would creep in and take its place. It may save mistakes to add that what we call green grass is Poa campestris, and Lolium perenne the Rye grass.]

WATERING TREES IN DRY WEATHER.—*B., Pittsburg, Pa.*, says: "I find a difference of opinion among some who know more than I about gardening, as to whether some trees I planted this Spring should be watered or not. Most say water, but a few whom I regard as knowing something say not. Which is the "approved" practice?"

[A difficult question to answer in a *general* way. There are times when water is almost essential, but it is best to avoid it if possible. In many cases trees are injured far more by the kind hand which holds a water pot than they would by full exposure to dry weather. If a newly planted tree shows sign of withering its leaves on the least warm weather, we should most likely cut off a few of its branches, which would lessen the evaporating surface. If it still seemed to suffer, choose a dry day to loosen the earth on the surface about it,—loosen say half an inch, and then with a rammer give it an "unmerciful" punching and pounding. This will so thoroughly pulverize the soil that it will attract moisture from the surrounding ground. If after all the leaves do not wear a cheerful aspect, make a shallow basin about the roots, and pour in a bucket full or two of water, and a day or so following fill in again with the dry earth, pressing it in closely. This will do for the whole season.]

NAME OF PLANT.—*B., Fairfield County, O.*: "I send you three bulbs, attached in a triangular position, one of them with a leaf like a Tigridia, the others without leaves, and seeming to be respectively one and two years older than the first. They were growing in the woods in rich ground, on a north hillside, and not far below the surface. It is new to me. Will you be kind enough to tell us its name and something about it in the *Monthly*."

[This appears to be an orchid—probably a Cypripedium, but the species can scarcely be made out from a bulb. It is planted, and when it grows we may be able to say more about it.]

SEEDS OF PRIMULA SINENSIS.—"*One of the Under Current*" writes: "Oblige by informing me, (and I presume the information would be acceptable to others) how I may obtain seed from Primula Sinensis. I have now many years, sought in vain for seeds, but find only an inflated capsule devoid of seed. The Eastern continental seedsmen must find them more readily or they could not afford us fifty or a hundred seeds of their choicest varieties for a dollar. But the question is how is it done. While the ink is moist, let me make my record as being one of those who would commend the plant to the cultivation of all flower lovers, as being one which will not disappoint their expectations. Now-a-days, especially when there are so many lovely varieties, both in foliage and flower, and if I cannot raise seed, I can buy enough for a dollar or two to raise a hundred plants, which yield me pleasure for a whole year. They trouble me a little before coming into rough leaf by damping off, but as soon as they obtain their rough leaf, no more difficulty, but all gratification until they bloom, when it is intensified, and continues throughout the winter a source of pleasure by their continued bloom. Endorse this if you can consistently."

[It has been discovered by Mr. Darwin, that many plants have a horror of self fertilization, and though stamens and pistils may seem perfect in the same flower, it is often difficult to get seed from those which rely on their own pollen. They will have the pollen from other flowers or none at all. This resulted in the discovery of the wonderful part performed by insects in cross fertilization. The genus Primula is especially one of those which generally refuses to be self fertilized. In the common English Primrose and Polyanthus, there are two classes known to florists as the "pin eyed" and the "thrum" eyed. In the former case the pistil is above the anthers, filling the centre of the flower; the apex protruding like the head of a pin. This one will never take its own pollen. It seems as if it pushed beyond the anthers expressly to avoid being fertilized by them; but with the pollen from another flower it generally sets very well. In what are called the "thrum" eyed

forms, the anthers have pushed beyond the pistil, and close up the throat. They rarely, though sometimes, succeed in fertilizing their own flower; but when the pollen from these get to the "pin" eyed forms, the result is almost always in favor of a full seed vessel. These facts may serve our correspondent in becoming more successful next time with the Chinese kind. With our correspondent's estimate of the Chinese primrose we quite agree. There is no plant which will usually furnish more varied gratification than this.]

BOOKS, CATALOGUES, ETC.

REPORT TO THE DEPARTMENT OF STATE ON THE FORESTS AND FOREST CULTURE OF SWEDEN. By C. C. Andrews, United States Minister: This is a pamphlet published by the Department of State, at Washington, and is a very valuable document, especially just now when timber planting is one of the greatest of present American questions. The Government of Sweden takes an immense interest in the growth of its forests, and the whole subject is treated by Minister Andrews in the most exhaustive manner.

TWENTY-FOURTH ANNUAL REPORT OF THE WOMENS' MEDICAL COLLEGE OF PENNSYLVANIA. Whether any practical good to Society will ever result from the exercise of the ballot by women, or by the triumph of what is known politically as "womens' rights," is a question which does not concern the *Gardener's Monthly* in the least; but it does believe that the interests of horticulture are served greatly by every effort for women's higher education. One of the best institutions for this purpose that we know of is the one represented by the little pamphlet before us. It is gratifying to find it flourishing. The list of matriculants numbers seventy, and are from nineteen different States. Among the professors are Miss Rachel Bodley, Dr. Henry Hartshorne, and Dr. J. G. Hunt, all eminent as botanists, besides in the chairs they fill in the college.

PROCEEDINGS OF THE WORCESTER COUNTY (MASS.) HORTICULTURAL SOCIETY, FOR 1873. As a general rule the proceedings of societies are dry reading, and we are sorry to say that some of them are worth but three cents per pound. Not of this class is the annual volume from this Society. It is carefully read—always with profit—and preserved with respect. The present issue is equal in value to any of its predecessors. Besides the dry record of who takes the premiums, there is generally an intelligent essay by the chairman of each committee, endeavoring to sum up the *nett* results, and a sort of record of progress made. Here we have excellent reading in the report of W. T. Harlow, of the fruit committee. He takes up the threadbare theory of Knight as to the wearing out of varieties, and puts new floss on it. He shows that the theory may not be, as we all know it is not, true in the narrow way in which it has been presented to us; but yet that it is a general philosophical principle, and must be true in some sense; and we cordially agree with him. Not so cordially can we agree with him in the proposition that "every winter, doubtless," all trees in this latitude are completely frozen, root, body and branch. It has been stated in the *Gardener's Monthly*, that grape vines with their roots out in ground may have the earth frozen solid about them, and yet when the canes in the house have been forced they have grown and flowered while these roots were out in the solid frost. And that Hyacinth roots put four inches or six inches deep in the ground in November, and frost immediately set in on and around them, will yet have their crowns at the surface when the first spring thaw comes, though the whole mass has been frozen solid all that time. We know these facts are *true* as represented, but how can "things *frozen* solid" make several inches of growth while in that condition? It is astonishing to us that this "frozen solid" theory ever had any place in an intelligent mind. If we saw any living thing "frozen through," and yet live, we should doubt the evidence of our own eyes. Certainly they may *appear* frozen sometimes, as a drowned man sometimes appears

dead; but when the drowned man recovers we are bound to believe that the man was not really dead, in spite of all appearances.

TRANSACTIONS OF THE PLYMOUTH COUNTY (MASS.) AGRICULTURAL SOCIETY, is another serial we always welcome to our table. The editor or "supervisor," has some sensible remarks on the relation of labor to the value of manures. He also deals extensively in figures in regard to the profitableness of the various modes of culture of various crops; and there is a capital chapter on tree culture for timber in the county. The progress of agriculture there is shown in no better way than by the statement that though the area under farm culture has decreased in the county, the sum of the products is as great as ever it was, and profitably so.

FIFTH ANNUAL REPORT OF PROF. C. V. RILEY, STATE ENTOMOLOGIST OF MISSOURI.—The State of Missouri deserves the thanks of, not only her own citizens, but also of the people of other States, whose legislatures have not yet been able to see the importance of aiding science, especially those branches which immediately affect the wealth and prosperity of a people as do entomology and those of a kindred character. In the preface, Mr. Riley expresses his gratification to find his work more and more appreciated, but we think that not he himself has a faint idea of the high degree of estimation in which his labors are really held.

The present volume has a timely chapter on the relation of the science to agricultural prosperity, and gives brief instructions for collecting, studying, and preserving insects.

A chapter on the Codling Moth, brings down knowledge of it to the present time. In regard to traps, Wier's shingle trap was found to be of some use; but paper bandages, rags, or some similar matter, tacked on and around the trunk, and when full of larvæ taken off and burnt, were found better ones.

The Colorado Potato Beetle receives some attention. The Apple twig borer has reached the Atlantic States, and there are many other brief notes of insect advances during the past year. There has been much of importance discovered in regard to the *Phylloxera*, all tending to sustain Mr. Riley's previous position that this minute root insect is one of the leading causes of grape failure in America.

The oyster shell bark louse is figured and described under the name of Mytilaspis pomicorticis, *Riley;* and its history and character fully given. He gives reasons for changing from the old name of Aspidiotus conchiformis. Another chapter is that relating to a very common nuisance—the Pine Scale insect—which so often completely cover the leaves of pine trees with minute white specks, and which is so destructive to the trees on which it feeds. Mr. Riley has found a certain remedy. Pines, as a general thing, will not make a new set of "needles" if the old ones are destroyed; but if taken off just as they are expanding new ones will then appear, and by thus taking off the leaves, eggs and all are involved in one common ruin, and the new growth comes forth insect free.

A new species of Hickory borer, *Scolytus careyæ*, of Riley, is described, and its bad deeds fully told. The Rose bug has a chapter devoted to it, as also has "a new enemy to the grape vine and others," named *nysius destructor* by Mr. Riley: then there is a chapter devoted to "insects injurious to the grape vines."

In this volume also appears a full history of the new discovery, *Pronuba yuccasella*, the insect by the aid of which the yucca is supposed to be alone fertilized. This discovery is remarkable in this that for the fifty or more years the Yucca has been in cultivation about Philadelphia and other places abounding in Entomologists and who must or might have seen thousands of capsules bored by this insect (for the writer doubts whether he ever saw one that was not), no one seems to have thought of looking for the insect which did it, and should leave it to Mr. Riley's industry to let us know all about it.

THE FLORIST AND POMOLOGIST.—This beautiful English publication is not as well known in the United States as it deserves to be. It is a monthly, in small octavo form, and every number beautifully illustrated. A set now before us has colored plates of a new variety of the English Primrose, Early Ascot Peach, Lilium tigrinum, Lishmanni, Iris ibirica Perryana, Maranta makayana, Young's Weeping Birch, Ricotees, Gladiolus Alice Wilson, Geonoma Seemanni, and other plain cuts and lithographs. This will show that a wide range is taken. The articles on Horticultural subjects are numerous and varied, embracing matters of science as well as plain cultural details.

THE SOUTHERN PLANTER AND FARMER OF RICHMOND, VA., has always maintained a high character among Southern Agricultural magazines. It has changed hands frequently of late years Now it is edited by T. L. Payne, and published by L. R. Dickinson.

PRIZE ESSAY ON FOREST TREE GROWING IN NEBRASKA—by J. T. Allan. This is full of facts as to what has actually been done in Nebraska in tree raising, and will be a valuable guide to those who are settling in that region, as well as to tree planters generally in the West.

THE MYSTERY OF METROPOLISVILLE. By Edward Eggleston. Published by Orange Judd & Co. It is generally believed that for some time after the passing of the *Hearth and Home* nto the ownership of the proprietors of the *American Agriculturist*, it was what is known to those who understand money matters as a heavy load to carry. But of late it has been rather the other way, and we are glad of it, for there are few papers of its class so intelligently conducted, and yet so well adapted to the moral wants of "Home circle and the Hearth's side." The poorly educated and the most learned; the young and the old; the ruralist and the citizen, all derive profit from its pages. Egg'eston's stories have had much to do with this prosperous tide in the affairs of the paper. This one has been through its columns, and is now published in book form.

NEW AND RARE PLANTS.

NEW GOLDEN ARBORVITÆ.—*Burrow & Wood Fishkill, N Y.*, write: "We think we have a very fine Seedling Golden Arborvitæ of dwarf habit, which originated with us about the year 1858. We hand you a young plant by to-day's mail for a sample, and in return would like your opinion."

[There are now many of these golden American Arborvitæs under cultivation, and the merit of any new one will depend on how the plants look after they acquire a little age. That is on their mature habit. The one sent us has a different habit from any other golden Arborvitæ we have seen, and we are inclined to think it will be a desirable addition. This, however, only a large plant can definitely decide.]

LILIUM WASHINGTONIANUM.—At the meeting of the Philadelphia Academy Natural Sciences, on May 20th, Mr. Thos. Meehan referred to a paper entitled *a sketch of the Liliaceæ of the Pacific Coast*, read by Prof. Alphonso Wood, and published in the volume of proceedings for 1868, in which he describes a "new species" of Lilium as *L. Washingtonianum*, giving as a reason for the name that it was generally known as "the Lady Washington" by the miners. Prof. W. said in his paper that it was remarkable that so fine a plant had been overlooked by other botanists. It so happens that Dr. Kellogg had ten years previously named and described this lily in the proceedings of the California Academy of Sciences for 1858, and the remarkable part of Prof. Wood's remarks is rather that he should have been ignorant of what other botanists had done. Through the unusual circumstance of two authors employing the same name, the confusion and trouble which loose and careless habits in describers bring to scientific students, the inconvenience in the present case will not be great, but it is but justice to Dr. Kellogg that this correction should be made in the records of the Academy.

NEW VARIEGATED LOBELIA.—Messrs. Claggett & Munger, St. Joseph, Mo., write: "At a time when baskets filled with plants are so much in use, and especially variegated plants so much admired for that purpose, we take pleasure in sending you a Lobelia which originated in our establishment last season, and as we have not noticed any such plant advertised in any catalogue, we thought it might be of interest for your readers to know that such a plant will be offered for sale at an early day. We leave you to pass an opinion whether such a plant would be welcome to lovers of flowers at large. This Lobelia appeared in a lot of seedlings last year. At first we thought it to be caused by sickly growth, but by close examination we found it to

be in a perfectly healthy condition, but still was not cared for as much as ought to have been. This season we find it to be one of our finest growing plants of that class. It has white flowers edged and dotted with rich blue and has by us received the name of Lobelia Paxtonia Variegata."

[This is a valuable addition to our garden plants. The white is clear and the green is lively, while the plant itself is in vigorous health We are sorry for its long name. Why not call it at once Claggett's Variegated or the "Claggett." Latin names are bad enough for species, although we cannot do without them there, but they serve no useful purpose whatever in a garden variety.—ED.]

NEW BOUVARDIAS.—Attention is being given in England to the improvement of these beautiful winter blooming flowers. The following are some that have just been introduced:

Alba Odorata.—This is a valuable addition to the group, differing from B. longiflora in its more compact and vigorous, yet dwarf, habit, also in its greater profusion and longer continuance of bloom. The flower trusses are large, with pure white petals of great substance, and very richly fragrant, the snowy whiteness of the lobes forming an elegant contrast with the rose-tinted trumpet like flower tubes.

Bridal Wreath.—This fine hybrid Bouvardia is recognized from its allied forms by the peculiar greyish, or white-tinted stems, and obscurely hairy or pilose leaf margins; in other features it is free, vigorous and compact in growth, intermediate between B. longiflora and B. jasminiflora. The bloom is produced freely in large cymose clusters of snow-white flower-lobes, broader than any other in its section; delightfully fragrant, and fading off with a delicate carmine tint. The greater width of its petals and large racemes of bloom, render it a very effective plant for late autumn and winter flower groups.

Queen of Roses.—A very beautiful variety in the colored group of Bouvardias, and the first known with fragrant colored flowers, producing large terminal branching clusters of pure bright rosy-pink trumpet-like blossoms, on crimson tinted flower tubes. Its neat, vigorous, and freely branched growth yields a long succession of bloom during the late summer and autumn months, forming a very distinct and desirable plant for pot culture in the greenhouse, conservatory, or open front border in the summer flower garden.

PAULLINIA THALICTRIFOLIA.—A very beautiful semi-scandent stove foliage plant, which will be most useful for all kinds of decorative purposes. It is of slender growth, producing very freely its beautifully cut leaves, which resemble the fronds of a highly-divided Maidenhair Fern. The matured leaves are of a striking bright green, the young shoots and foliage being of a beautiful rosy tint.

The plant may be grown either on a trellis or in the bush form, and as such is a very great acquisition, both as a plant for table decoration or to cut from. This plant was introduced from the Brazils through the late Mr. Bowman.—

DOMESTIC INTELLIGENCE.

APPLES FOR CENTRAL ILLINOIS.—RURAL, of the *Chicago Tribune*, says:—"We must not have all regard for high prices; for, while the Lady apple may sell readily at $2.50 per bushel, it is less profitable than the willow twig at 50 cents. We must, therefore, take all things into consideration, if we would make a wise selection. Then, again, the farmer who grows apples for market should confine himself to a few varieties, for his customers will desire the same kinds,—that is, if they are good ones. For summer and fall apples, Saps of Wine, Red Astrachan, Lovel, Rambo, Fall Wine, Porter, Standard and Snow are amongst the best. For sweet apples, Golden Sweet, Rumsdell's Sweet, Baker's Sweet, Pound Sweet, and Paradise are as good as any."

THE MEDICAL BOTANY OF CALIFORNIA.—Dr. W. P. Gibbons, of Alameda, has been devoting considerable time and labor to the investigation of the medical properties of the plants peculiar to this Coast, and solicits the aid of his professional brethren in different quarters. In a paper, lately read before the State Medical

Association, he describes a number of cases showing marked benefit from the *Grindelia* in Asthma, and thinks it will prove a valuable remedy, if employed with proper discrimination. There are two species which appear equally active, the *robusta* growing in low places, and the *hirsutula* on dry fields and hills. The infusion he regards as the best preparation.—*California Horticulturist.*

THE ANGULAR DIVERGENCE IN THE BRANCHES OF PLANTS.—Some grow quite prostrate, and others, though closely allied species, might be strictly erect. Late in the autumn we may note plants with prostrate leaves or branches, which in spring, will have them in a sharp, upright angle. The Verbascums, especially Verbascum Blattaria, had their root leaves so firmly pressed against the ground, that on lifting they would fall back with a spring; as soon as the central axis grew, the leaves from that would be almost upright. In some respects, erection or prostration became almost specific characters. The Rubus villosus usually grew erect even from infancy, and the Rubus canadensis generaly trailed; yet the last-named would sometimes throw up strong erect stems, which could scarcely be distinguished in that stage from R. villosus. Again, the same species of tree would often produce individuals quite erect, and at other times very pendant, and hence we had in horticulture the class of weeping trees. All trees seemed to have this power of producing pendant individuals. The Oaks, Ashes, Poplars, Elms, all furnished familiar examples.

It was usual with botanists to pass these things over as "weaknesses." But the term weakness explained nothing. To say that these plants had lost the power of erection was simply restating the primary fact. Moreover, some of these prostrate forms had apparently more vigor than the erect ones. Rubus canadensis was weaker than R. villosus, truly; but, on the other hand, some of Russian trailing Junipers were far more vigorous than any of the upright individuals. The Weeping Beech also was in appearance more vigorous than the ordinary forms. All Beeches had their young growth pendant. As the growth matured, the branches became erect; but in the weeping form erection did not come with maturity, and hence it remained pendant. In the Ashes, however, there was no pendency in the young growth; but the Weeping Ash was one of the most decided of all drooping trees. In such cases as these, the law which governed the angles of divergence must either be different in each case, or operate at different stages of the development of the branches

Mr. Meehan, in his late travels in the Rocky Mountains, came on a track covered profusely with one of the small creeping Euphorbias, probably E. cordata, in which a large quantity grew perfectly erect. Sometimes only a portion of the plant exhibited this character, at other times all the plant was upright. The specimens he exhibited were of the erect class. In all these cases the plant was attacked by a small fungus, Æcidium Euphorbiæ hypericæfolia of Schweinitz. He thought that the fact that this little fungus should be able to make a usually creeping plant, rooting from every joint, entirely lose this character and become erect, was worthy of some notice by students in this branch of botany. —T. MEEHAN.—*Extracts from a Paper in Proceedings of the Academy of Natural Sciences, Philadelphia.*

FILBERTS.—We were surprised, on visiting one of our Broadway fruit shops, to find fresh filberts, imported from Kent, in England, selling with their heavy green husks on for eighty cents per pound, and this has been the average for several years. Why should not our farmers in the Middle and Southern States grow filberts? The climate which will produce good peaches will also produce filberts, and all of our light tobacco lands in the basin of the Chesapeake are as well suited to their growth as the soil of Kent, and certainly at the prices ruling now in New York, or at even half these prices, filberts would prove the most profitable product within the whole range of agriculture. Nor is the adaptation of the soil and climate of our Middle States to the growth of these nuts at all problematical, for they have been grown in a small way on some of the old homesteads in Virginia for more than a hundred years.—*Turf, Field and Farm.*

CATCHING THE CODLING MOTH.—There has been a great deal of superficial instruction given in this country for the trapping of noxious insects. Bottles with sweetened water, and lighted lamps hung in trees, were recommended by A. J. Downing many years ago, and copied by a number of writers since. It was supposed that curculio, codling moth and other insect depredators might be easily caught in this way.

In contrast with this conjectural advice are the careful and accurate scientific examinations of C. V. Riley, State Entomologist of Missouri, who says in his last report to the State Board of Agriculture: "I have elsewhere given it as my decided opinion that neither fires, lights, or bottles of sweetened water, vinegar or any other liquid, can be used with any degree of success in fighting the codling moth." He then states that three years ago he kept a trap of this kind, made of bright tin, well lighted, and that he never caught a single specimen. During another summer, two kerosene lamps and a bright reflector attracted hundreds of insects, yet only one or two codling moths were caught among all this multitude. At the same time many wide-mouth bottles, with decoying solutions, were hung in trees. Many insects were caught, —small harmless moths; some that were injurious, and others known to be beneficial. Among the latter were numbers of two species *known to prey on the codling moth*—while but three codling moths were caught all summer. Mr. Riley further adds that on showing specimens of the codling moth to intelligent cultivators, they candidly confessed that they did not know it by sight, and hence other moths, were mistaken for it. We note these observations to show that the common loose way of making such examinations is too careless and vague for reliance.—*Country Gentlemen.*

FIGS.—There is no more delicious or healthful fruit than the fig, and we are surprised that so little attention is given at the South to its culture and propagation. It will thrive well in any part of the cotton States. Figs dried in the sun, by simply mashing and placing them on tins, are superior in flavor to those imported, and will keep as long.—*Plantation.*

But they get wormy. Dry them on a kiln, or even in a large cook stove.—*Mobile Register.*

HORTICULTURAL NOTICES.

THE PENNSYLVANIA HORTICULTURAL SOCIETY.

The Society decided to hold this year a grand spring exhibition, with the idea of affording the citizens of Philadelphia a glimpse of what flowers are at this season; the fall exhibition generally resolving itself into a first class fruit display, with the flowers rather as a collateral. This season, however, was so late that gardeners and nurserymen found themselves up to their eyes in work, and thus very reluctantly were compelled to forego the pleasure of exhibiting. Notwithstanding these drawbacks the exhibition was an excellent one, and in many respects more interesting than any of its predecessors.

There is a great lack in all our exhibitions of well grown plants; indeed the idea of growing things in a *very superior manner*, except in a very few instances, is becoming one of the lost arts. Most of our exhibitions depend on the miscellaneous matter hastily gathered up from gardens and greenhouses, and while showing ordinary skill, and worthy of ordinary commendation, little of it is of that superior order which horticultural exhibitions are expected to foster and bring forth. This is said by way of encouragement to better exertion. We all need a hint or two as to what we may do sometimes.

There were on this occasion several things well worthy of being classed with superior excellencies. One of these was a hanging basket by C. W. Trotter. The centre was a fuchsia, Rose of Castile, we believe, grown as well as any often seen in pots. It had seventy-five expanded flowers. The outside filled with luxuriant pendant vines of various kinds. A large Red Azalea, by Robert Scott, was four feet high and four feet across, bearing, we may surely say, *thousands* of flowers. A very beautiful Yucca quadricolor, by H. C. Gibson, was nearly three feet high in the stem, and with a profusion of luxuriant healthy foliage.

An Anthurium Schurzianum, by Mr. Alex. Newett, gardener to H. Pratt McKean, Esq., had seven flowers on. The scarlet waxy texture of the flowers of this plant will ever make it a

popular favorite. Every one admires the satiny surface and pretty markings of the leaves of Cyanophyllum magnificum. Mr. Lucking, gardener to M. Baird, Esq., had a plant with numerous leaves two feet long by about one wide.

The bouquets and table designs, were of the highest excellence, and did much credit to the taste of the exhibitors. It is long since such excellent material appeared on the Society's tables. In Mr. John Dick's excellent collection, use was made of the rather rare fern Lomaria gibba. Pennock & Bro, in a magnificent plateau of flowers, seemed to rest chiefly on Roses (Marshal Neil, Bon Silene, Saffrano, mostly) and Lilies of the Valley, with ferns. Robert Sherwood had more Carnations and Pinks in his than the others, and gave it a marked character by having the roses thrown out from the mass of flowers on longer drooping stems. Among other articles deserving of special notice, were some Pansies by Mr. J. Thomas, gardener to A. J. Bucknor, Esq., some of which were two inches across. His dwarf Cinerarias were about eighteen inches across their flower heads; and Calceolarias, on one of which we counted a few over one hundred open flowers. These are worth ranking with "well grown plants." In Mr. Newett's collection, as well as in one or two others, was the new Coleus, "Camellia." It has a stripe of vermillion in the leaf, a tint not before known in Coleus; but it is hard to keep in this condition, as it "runs" out, as variegated leaves do sometimes. It is a variety raised last year near New York. A fine Nephrolepis in this collection reminds us to say that it is one of the best of all ferns for hanging baskets. This one was N. bulbifera, but all the genus is good for this purpose. In the same collection were well grown plants of Dracœna regina, Calocasia macrorhiza variegata, with leaves about ten inches long, Clerodendron splendens, Begonia glaucophylla scandens, with nice white and rose flowers.

Mr. H. A. Dreer had a neat collection of small plants, in which was exhibited for the first time the Scarlet Larkspur, Delphinium nudicaule. The Fuchsia Sun-ray, a variety with three colors, and Lobelia Snowflake, also attracted attention. Alongside of these were some admirable forced strawberries, the fragrance of which added much to the pleasure of the occasion, even if the fruit had not been so remarkably fine as they were. It is rare to see in market as fine ones as these were. They come from Mr. Blair, of Roxboro. Albany Seedling and Triomphe de Gand.

In Mr. Fergusson's collection, from his Laurel Hill nursery, Azaleas made a particularly striking show. One of the best was a white with carmine stripes and fringed edges—Alexandra II. Mr. Harris, florist, of Darby Road, always excels at these exhibitions in the well grown florists flowers in his collections. Some beautiful "Elm City" Fuchsias, and the well known Coleus, Beauty of Windmere, were much admired.

Mr. G. Huster, gardener to J. B. Heyl, Esq., had in his collection a very full flowered Epiphynum Jenkinsii, which made the visitors wonder why this fine old plant is so seldom seen now-a-days. Here also was an old fashioned purple Gloxinia with over one hundred flowers on it.

Mr. Moon, of Morrisville, had a large number of hardy evergreens in pots.

The honor of exhibiting the best quantity of rare, new, or interesting plants, was borne on this occasion by Mr. J. Dick. Among a splendid collection of Tricolor Geraniums, Miss Gohring had *four* colors in the leaves; and is a superior variety to Lady Cullum, and this is saying a great deal. "Mrs. John Dick" is also an excellent variety. Among the new plants is Alocasia zebrina, with striped stems; Tillandsia Lindeni, flowers purple and white; Dracœna Guilfoilii, with narrow leaves, striped white and pink; the curious leaved Chamœpeuce cassabona, Croton aucubæfolia, with distinct gold markings, and some others.

Mr. Johnston, gardener to Dr. Camac, had a collection of one hundred species of ferns, all remarkably well grown.

Miller & Hayes, of Mount Airy, one of the most enterprising of our younger firms, had an elegant lot of plants, in which Echeverias played an important part. They also had some new roses and varieties of rare evergreens.

In one of the halls the experiment was tried of holding a flower market, in which such as desired might sell their plants and flowers. It was well patronized by the public, and promises to be a valuable feature of the spring exhibition. Great credit is due to Mr. Thos. C. Andrews, on whom the whole arrangement, in the absence of the regular committee, fell. Messrs. J. S. Houghton, J. E. Mitchell, and Secretary Harrison, also did almost superhuman work on it.

AMERICAN POMOLOGICAL SOCIETY.

FOURTEENTH SESSION, AND QUARTER CENTENNIAL CELEBRATION.

Whereas, the American Pomological Society, at its last session, accepted the invitation of the Massachusetts Horticultural Society, to hold its Quarter Centennial Celebration, and Biennial Session, in the city of Boston, in 1873;

Therefore, in conformity with said acceptance, the undersigned give notice that the Fourteenth Session of this National Association will be held in the hall of the Massachusetts Horticultural Society, Tremont Street, in Boston, commencing Wednesday, September 10th, 1873, at 10 o'clock A. M., and continue for three days.

All Horticultural, Pomological, Agricultural, and other kindred associations, in the United States and British Provinces, are invited to send delegations, as large as they may deem expedient, and all persons interested in the cultivation of fruits, are invited to be present and take seats in the Convention.

The coming session will be especially interesting, commemorating, as it will, the termination of the first quarter of a century of the existence of the Society, and it is believed, will be one of the most important and useful that the Society has ever held. On this occasion there will be brought together the best cultivators and fruits of our widely extended country, when may be examined and compared, the fruits, not only of the cooler climes of the North, but of the South, the West, and the Pacific Slope. It is therefore very desirable that every State, territory, and province of America, should be fully and ably represented in this convention, thereby promoting the advancement of one of the great resources of our national wealth,—the extension and perpetuation of the amicable and social relations which have heretofore existed among the members of the Society,—and the diffusion throughout the land, of our deliberations, for the benefit of our constantly expanding territory.

It is therefore hoped that there will be a full attendance of delegates from all quarters of our country, thereby stimulating more extensive cultivation by the concentrated information and experience of cultivators, and aiding the Society in perfecting its Catalogue of Fruits. This will be one of the prominent subjects which will come before the Society, and we therefore respectfully urge the various State and Local Committees which have not already responded to the circulars of P. Barry (Chairman of the General Fruit Committee, Rochester, N. Y.,) to do so, with such information and lists of fruits as may aid in determining what varieties are best adapted to their several localities.

At this session the Society will appoint the place for its next meeting, and also decide what action it shall take on the invitation to participate in the National Exhibition at the Centennial Celebration of 1876, in Philadelphia, and it is respectfully requested that members come prepared to express their opinions in regard to this subject.

Arrangements will be made with Hotels, and as far as possible with the railroads terminating in Boston, for a reduction of fare, and of which notice will be given in a future circular. Similar arrangements can undoubtedly be made by the various delegations, with roads in their localities.

Members and Delegates are requested to contribute specimens of the Fruits of their respective districts, and to communicate in regard to them whatever may aid in promoting the objects of the Society and the science of American Pomology. Each contributor is requested to prepare a complete list of his collection, and to present the same with his fruits, that a report of all the varieties entered, may be submitted to the meeting as early as practicable.

The Massachusetts Society for Promoting Agriculture have kindly appropriated Five Hundred Dollars, and liberal sums have been promised by other generous patrons. See premium list.

An increased interest will be given to the occasion by the Grand Exhibition of Plants and Flowers by the Massachusetts Horticultural Society, which will occur at the same time.

Packages of Fruits, with the name of the contributor, may be addressed as follows:—"American Pomological Society," care of E. W. Buswell, Massachusetts Horticultural Society, Boston.

All persons desirous of becoming members can remit the fee to Thomas P. James, Esq., Treasurer, Cambridge, Mass. Life Membership, Twenty Dollars; Biennial, Four Dollars.

MARSHALL P. WILDER, *President*,
Boston, Mass.

F. R. ELLIOTT, *Secretary*, Cleveland, Ohio.

Newspapers and Periodicals that take an interest in Pomology, are respectfully requested to publish the above.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XV. *JULY, 1873.* *New Series, Vol. VI. No. 7.*

HINTS FOR JULY.

FLOWER GARDEN AND PLEASURE GROUND.

If thanks be due to the man who invented sleep, as some writer particularly insists, how many thanks are due to him who invented lawn mowing machines. When the writer was a boy he had to rise "with the lark," and go out with the mowers, in order that the grass might be cut before the dew went off from it; now if he chooses he can lie in bed and dream his thanks to the sleepy fellow, resting assured that with a good mower he can cut any time in the day. But thanks are not only due to the inventor of the mowers, but to those who have so sedulously improved them. It is not more than a year or two ago but we could hardly go over a lawn with our machines without a pony. Now the hand mowers will do an immense amount of work in a short time, and unless in very extensive places, a horse is not thought of. But to us the greatest triumph of the mower is that we need not set aside all other manner of work whatsoever, and go to mowing because the cutting time has come. We can now mow long grass as well as short grass—and indeed this is perhaps the greatest gain of all. It was the fault of some of the earlier machines that we had to cut often, which meant of course pretty close, and this close cutting weakened the grass to such an extent that small creeping weeds were aided in their growth by being brought fair to the sunlight, and in the struggle for life, the grass was crowded out. In view of this we have had to recommend that the lawn should be left to grow without mowing every few years, if grass was to be permanent. Now we have machines which will cut at any height. For our part we do not see the beauty of a very close shave, and think that an even and regular growth of a half to one inch, prettier than one cut so low down. But this is a matter of taste, and we do not insist, only a very short cut is fatal to a long lived lawn. With the improved hand mowers of the present day, there is probably no one among our readers but will want to have a neat little bit of grass in good keeping about his house.

But passing from the lawn to the trees upon it—the time is coming when transplanted trees of the past fall and spring will suffer more than during any other part of the season. If they show a vigorous growth of young wood, no danger need be apprehended, as it indicates that the roots are active, and can supply all the moisture the foliage calls for; but if no growth has been made, no roots have been formed, and the leaves are living for the most part on the sap in the wood and bark, and hot, drying weather will tell with injurious effect on such trees. This is generally first shown by the peeling off of the bark on the southwestern side of the tree—the most drying aspect; and where such exhaustion appears probable, much relief may be afforded by cutting back some of the branches, syringing with water, occasionally, shading the trees where practicable, or wrapping the trunk in hay bands, or shading the southwest with boughs or boards.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing it time to soak gradually away, and when the surface has dried a little, draw in loosely the soil

over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes, the easier it dries; and the result is, the more water you give the more is wanted.

Keep the pruning knife busy through the trees and shrubs, with the object of securing good form. Judgment will soon teach one which shoots would spoil the shape if not taken out.

In most kinds of soil the keeping the surface loose by hoeing and raking in dry weather, will be an excellent method of keeping the main body cool and moist—admitting the air, which is a good non-conductor. In soils, however, which are deficient in loam, and in which sand prevails to a great extent, frequent stirrings have a drying tendency, and a mulching of short grass, or decaying vegetable matter of any kind, will be found very useful around transplanted trees, shrubs and other things.

We should like to call attention to a note we gave last year, that some beautiful objects for lawn decorations can be made of Wisterias, by training them as standards. A young plant is selected and trained to a stake six feet high. When the plant reaches this it is headed off. The second year the stake may be taken away, and the young plant will support itself. It will never make running branches after this, as it takes all its nutritive powers to overcome gravitation and sustain itself erect. A beautiful umbrella-like head is formed, and its hundreds of drooping flowers in spring thus shown off to beautiful advantage. Another point of interest to a nurseryman in this is, that with this check to growth the reproductive powers are called into play, and the plants then *usually produce seed abundantly*. There is hope for numerous improved varieties as soon as these facts become generally known. This is a very good season to train plants up for this purpose.

Many of the earlier sown annuals will be seeding now, and those flowers which opened first will make the best seed to save. Where seed is not desired, it is best to cut away all as it forms. The annuals will continue to bloom much longer for this care. In getting seed of Double Hollyhocks, much difficulty is often experienced. The petals prevent the pollen from falling on the pistil. It is best, therefore, to fertilize them by hand. They then produce as much seed as the single ones. Another advantage of this artificial hybridization is, that we can get any color we please from seed. If, for instance, we want to reproduce the kind perfect, fertilize with its own pollen; but if we would raise new varieties, use pollen from a plant of different color from the one we employ for seed.

Those who wish for a good supply of window flowers next winter, should commence preparations about the end of the month. The Chinese Primrose, Cineraria, Mignonette, Alyssum and other desirable plants should be sown in pots, and kept in a cool frame until they grow. Most people fail with these beautiful plants by sowing too late. The Wallflower is a nice old-fashioned window flower, and cuttings of the double kinds should be struck at once. Cuttings of Geraniums and other things for this coming winter's blooming may still be put in.

We have so often spoken of hedge management in these *hints*, that it seems to us as if every one ought to know about it; but it is wonderful how few do. Only recently one whom we know to be one of our most attentive readers, and to have been one from the beginning, remarked as he passed, what everybody calls a very beautiful Norway Spruce hedge on our grounds, that it was really beautiful, but it was a great error to have it so unnecessarily wide at the base. This hedge is five feet high and five feet wide as the base, which makes it rather wider than it is high; of course it is trimmed into a truncate triangular form.

Now it is one of the essentials of a permanent prosperous hedge, that it must be at least as wide at the base as it is high, and that it must be trimmed with a flat or gently curved surface to a point at the top. The *light then has a chance to play directly on every part of the leaf surface*, without which, it is impossible to have a hedge long in order. For that part which receives the greater share of sunlight, will get stronger, and that which gets the least gradually grows weaker, till a thin, poor base is the final result. This is one great object in pruning to remedy.

The Gladiolus has become one of our most popular summer flowers. Those who have collections of them arrange the varieties very tastefully according to their colors. Take a list of colors as they flower, so as to arrrnge them properly next year. We give the same advice for Petunias, Verbenas, and Geraniums. The various shades of colors of these varieties properly arranged, make beds peculiarly pleasing. This is one of the arts of modern flower-garden-

ing, to arrange flowers properly according to shades of color.

FRUIT GARDEN.

One of the worst inflictions a writer has is dealing with stupid people. Large numbers have an idea that fruit culture is an exact science, and that after they have learned to do a few things, the sum total of success ought to follow as regularly as the rule of three. This is especially the case in fruit culture. If you tell a man that deep soil is essential to good culture, like enough he turns all his rich top soil down two or three feet, and sticks his plants in the old poor clay he has brought to the surface, and at the end of the season, points to the result as a specimen of *your* folly. If you say that soil pressed firm enables the little roots to touch the earth and draw in moisture better than loose earth, ten chances to one if he don't drill holes in the middle of a turnpike road, and after dropping a grain of corn into it, assert in the end that you are the veriest of humbugs. If they read that summer pruning fruit trees weakens them, under no circumstances will they touch a branch; and when you teach that fruit trees are often very much benefitted by summer pruning, they think you are the most inconsistent wretch living. It is indeed very unsafe to give such people rules, and yet illustrations serve them no better. Say to them that the roots of most of our fruit trees suffer by the heat of our summers, and that the best success follows where the roots are cool, and they will imagine you mean to import a cargo of ice to pack around them. Then you say that this is extravagant, you would sooner mulch with any old vegetable material, they will tell you it is too expensive—they cannot afford it. Tell them in reply to put the orchard in grass or clover, and they will say to you that the land is poor, and will not support two crops. Point out that this is another question, that the two crops must have manure. But after all they have not the manure. Then in despair you say, well then keep the grass mowed, and let it lay where it falls. It will be better than no manure at all.

But after all, it is no use to talk to such people; they are bound to "have" you, but there are intelligent people who well know that to have success in fruit growing, there is no rule of three. A man must know with the tree before him what *that* tree wants. Books will not tell him; principles will not tell him; the most experienced tree grower at a distance cannot tell him—he must listen to that tree's own tale. Then he may apply what he has read and seen to the immediate case. There is no other road to success. With this view, let our readers remember that the roots want plenty of food, as much so as any other garden crop; want to have their feeding roots near the surface of the ground, and want to be kept at a temperature below 80°. Whatever accomplishes this is favorable to the best results in fruit culture. All the discussions about clean culture or grass culture; harrowing early or harrowing late, and many other matters about which some people love to argue, are of but secondary consequence. They are but the tools with which the work is to be done. Which does the best, is best to be done. Sometimes it is one, sometimes the other—ask the tree. But this matter of earth heat is of great consequence to the cultivator. Many roots cannot stand 80° and the plants remain healthy. The gooseberry is particularly of this class. As soon as the earth's heat goes over 70°, the gooseberry commences to mildew. Any surface covering that will keep down the temperature, is good for the gooseberry.

In the fruit garden, if trees set out last fall or spring do not show signs of growing freely, cutting back a portion of the branches will make a great difference in their favor. It is a great point with good fruit-growers to have all the branches in a tree of uniform vigor. This can be gained by pinching off the growing points of the stouter ones, leaving the weaker ones to gain strength by the check to the others. Where the branches are likely to be too thick, some may be taken out while green, instead of waiting till winter to do it; not forgetting, however, that a loss of foliage is, in some degree, an injury to the tree; and that as little of this should be done as is consistent with necessity. Some recommend trees to be pruned in summer, *because* the wounds heal better then. It is true the wound does heal better, but the loss of so much foliage is an injury not compensated by the healing of the wound. However, where the trees are young, and the branches to be cut away but a small fraction of the foliage, the injury is little, and the summer trimming is thus a gain. Nursery trees are best served in this way. Strawberries, Raspberries and Blackberries are "summer pruned" chiefly by thinning the suckers and runners. Strawberries are often grown in beds, and the mass of runners suffered to grow

together as they will. This is the best way for parties who have little time to give to their gardens. When grown in hills, or with the runners cut off, something is necessary to place between the rows or the plants, in order to keep the fruit from getting gritty after rain. When they are in beds, the fruit keeps cleaner without much difficulty. But with this plan, the runners should be thinned out at this season of the year, leaving them only about three or four inches apart. Of course, we weed these Strawberry-beds; a large part of the runners should be treated as weeds and taken out at the same time. Raspberries and Blackberries should be served the same way. All the suckers not wanted to bear next year, should be taken out as they appear. If the kind be valuable, the young offsets taken up may be transplanted any time through the season, by well watering and nipping out the young tender tops. About the end of the month it is often the practice to clip off the growing ends of Blackberries and Raspberries. It is said to stiffen the canes, and it renders stakes to support them in a measure unnecessary.

People sometimes are anxious to get rare kinds of strawberries to fruit early, and hence plantations are made in the fall. For general crops we think there is not much gained by fall planting. In the case of rare varieties, however, it is often worth a little extra trouble to do things well. The best way to proceed, is to get small pots with rich earth, and sinking them in the ground, layer runners into it. Such plants become very strong, and can be transplanted from the pots without injuring the roots, and will make strong stocks which will fruit very well next year. We raised some excellent President Wilder's this way last year. Of course the result was not sufficient to enable one to form an opinion of its whole character; but we may say, that in spite of the excessively hot weather, it has turned out remarkably well. In regard to the best strawberries, it is remarkable that the bulk of all the thousands of bushels which come to the Philadelphia market is still Albany Seedling. Amongst amateurs there is no one that carries universal supremacy with it, as personal taste dictates the favorite. But certainly those which are grown the most extensively are Green Prolific, Triomphe de Gand, Jucunda, Agriculturist and Downer's Prolific.

The thinning of fruit—watching of insects, especially the borers in Dwarf Pears, Quince, Apple and Peach—and summer-pruning are the main subjects of attention at this particular season. Where the soil is not very good, as may be noted by a weak growth of the trees, a surface manuring may be yet given with advantage. Every day's experience more decidedly shows the great advantages to the pomologist of this method of applying manure.

It used to be, and is yet to a great extent, the recommendation of writers to cut away raspberry canes as soon as they have borne fruit; fruit-growers know better now. The slight shade these old stalks afford, is agreeable to the new growth which is to bear next year.

In regard to training fruit trees, this is the most important month in the year. If a shoot appears where it is not wanted, pinch it off, this throws the sap into other directions where strength and vigor is desired. A good summer pruner does not leave much to be done in the winter time.

VEGETABLE GARDEN.

Preparations for the Celery crop is one of the chief matters in this department at this season. No plant, perhaps, requires a richer soil than this, and of all manures, well decayed cow dung if found to be the best. After so many trials with different ways of growing them, those who have their own gardens—amateurs, for whom we write—find that the old plan of sinking the plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow manure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Salt in moderate doses is usually a wonderful special fertilizer for the Celery plant.

Late Cabbage is often planted in gardens between rows of potatoes, where it is an object to save space. Some fancy that the Cabbage is better preserved in this way from the Cabbage-fly, which they say prefers the potato; but on this point we are not sure. We do not think the Cabbages do quite as well as when they have the whole ground to themselves; but of course a double crop could not be expected to be quite so fine.

Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but

many cultivators who grow for size and quantity only, believe they have the best results when growing them on the level ground.

For winter use, Beets are occasionally sown now, and also Cucumbers for pickling purposes; but not often; and at any rate it must be attended to early in the month.

The Lettuce is another cool country plant. It can only be grown well in hot weather when in very rich and cool soil.

Bush Beans may also be sown for late crops. A very deep rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them up to poles as they grow. The poles should not be too high--about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

In many amateurs' gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The Pea is a cool country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They need support. All Peas grow better and produce more when grown to stakes.

COMMUNICATIONS.

OBSERVATIONS AND RECOLLECTIONS OF NEW HOLLAND.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

(*Concluded.*)

In this hemisphere, Ericas are meagrely represented by a few free growing imported kinds, which appear to thrive tolerably well, while the more delicate, choice and beautiful varieties seem *only* to grow under protest. The *skill* required to grow them is obtainable, no doubt, but somehow there is a *something* wanting for their successful cultivation. Doubtless an uncongenial climate is the chief cause why they do not flourish. At the "Golden Gate" nursery, San Francisco, I saw the best examples of successful Erica and Epacris growing on this continent.

England is famed for her many rich and extensive collections, where *the highest skill*, with every necessary aid is employed in their cultivation. There are upwards of six hundred species known to the botanist, all natives of the Cape of Good Hope. In this country there is but one in Nova Scotia "native to the manor born." Neither are they in Australia. In Europe there are several pretty kinds, which cover large tracts of uncultivated land, and are used for various domestic purposes. It is known in Great Britain as the Heath, or "heather bell" of the poets.

If the reader has unwearied followed my footsteps thus far, I will conduct him still farther, and introduce him to the gold fields. Here, and on every side were the holes or mines, where anxious men were picking and digging in search of the precious mettle with untiring zeal—I had almost said with a zeal worthy of a better cause, when I looked at the toiling, dirty, ragged, unkempt grovellers, burrowing like rats in their holes, some up to the thighs in water, scratching for "filthy lucre,"—I thought surely the folly of the ancient Israelites was being enacted again in the nineteenth century by worshipping a golden calf.

Near by was a sight more *grave* than gay, as the narrow bed just excavated was awaiting the weary one, who had ceased from his labors; notwithstanding, the scene partook more of the serio-comic than the dramatic. The angel of Death, while hovering around the sick man, had lovingly descended to receive his disembodied spirit, and silently ascending to the realms above, had ushered it within the portals of bliss.

In an open tent adjacent, which, by the way, was of primitive construction, without either sides or top, having only a mud bottom, on which were seated the surviving "chums" of the deceased digger, who had but a few hours before "shuffled off his mortal coil," and was laid in a stringy bark coffin, awaiting the last sad obsequies the living pay to the dead, his late companions were having a "wake" over the silent remains, according to the ancient usages and custumes of their fore-fathers in old Ireland. They, the mourners, seemed to be more *whiskey full* than *mournful*, having treated their noble selves to big lashings of the same. Lustily they sang:

"Terry O'Rau was a nate young man,
And was loved by the lassies of Derry O,"

which was all true, no doubt, and then quaffed another dram to the memory of their departed comrade.

Whether from being infused with the spirit of wine or influenced by the Spirit divine, I cannot say, but at any rate they seemed to have come to the conclusion

"That to talk about trifles is trifling folly,
So the best aim of life is to live and be jolly."

Alas! poor fellow, I exclaimed, he is but a young man, "cut down like a flower." The grim tyrant "that spares neither age nor condition," has followed him here. "Poor fellow! you may well say," remarked a grimy bystander. "But then it was his own fault, his being pisoned. You see, sir, he had not long come from the old country, and had brought out some queer notions with him; he was a tec-total chap, and refused to drink anything stronger than pison water we get about here. It is rank enough to pison the strongest *old lag* at the diggings, unless he mixes it with good liquor. Only fools wet their whistles with such belly vengence, and if they are not pisoned outright, why they get water-logged, which is just as bad."

The once beautiful landscape was sadly marred by the operations of the diggers. Its sylvan and picturesque features were disfigured by loose heaps of earth and stones the miners had thrown out of their "claims." To pick ones way among them from one hole to another was no easy task, especially during the heat of the day, when the fierce rays of the sun glistening on the quartz, to almost blind and scorch whoever makes the attempt. A fight about some disputed "claim," brought to the surface hundreds of men who had been vigorously plying pick and shovel below. Like a resurrection scene, they arose from the earth where they were immured, to see that the pugilists had *fair play* in their fisticuff encounter. How the battle ended I know not. Whether the *best* man lost or the *worst* one won I care not.

The basest passions which influence mankind, were exhibited among the lawless and unscrupulous adventurers, who swarmed around the diggings ready for anything and everything but honest labor. Some were *lucky* in finding the precious metal, and some were *lucky* in stealing it, and from the condition of Lazarus were transformed in a moment to rich *gentlemen*. Other "unlucky dogs" made nothing, but lost the little they had—all their hopes, their health, and happiness, and died. To many a villainous old convict the mines proved a God-send. Little did the taxpayers of Great Britain think they were doing a kindness to the scoundrels whose passages they paid to the modern El Dorado. The mortality among the diggers was great. Dysentery seemed chronic among all classes, superinduced by the unnatural mode of living, and especially from the use of the brackish water, which was dirty and disgusting to the palate, and unwholesome to the stomach.

Wattle and daub huts, stringy bark wigwams and canvas glory holes, were called restaurants, hotels and dining saloons, and at which the universal pabulum, *grog*, the great panacea for all the ills a digger's flesh is heir to, could be readily exchanged for gold dust or nuggets. I saw but few of the softer sex there, and felt sorry for them. It seemed to be a shocking place for lovely woman to degenerate in.

As I turned my back to "the tented field" in search of more congenial scenes, heavy rain drops began to patter on the trees, indicative of a coming storm. Australia is proverbially a dry country, but for all that, it *does* rain sometimes. The hot wind had scooped up all the loose particles of dust and sand and whirled it about in the air, to the discomfort of all living creatures. During a dust storm the atmosphere becomes dark and gritty; like the Egyptian darkness it can *be felt*, and from which there is no escape, neither indoors nor out, until the south wind bearing heavy masses of clouds from the ocean, meets the withering hot blasts from the interior, and in the war of elements which follows, discharges the deluging rain. All nature seems gladdened and refreshed with the welcome showers. The dried up river beds and water courses are suddenly filled, and flow for a few days and then form ponds and mud holes until the intense heat evaporates the remaining moisture, and then the river bed becomes dry again. The sticky mud which follows a shower "is something to be talked about," and is as like "Spaulding's liquid glue" as anything I can compare it to.

By dint of perseverance I plodded through the semi-fluid, among struggling horses and floundering oxen, and landed among the scrub. Twilight had begun to throw its uncertain light across the fading landscape, while the lengthened shadows of the lofty Eucalyptus grew longer and longer, as the fiery chariot of "Phœbus" rolled on in its downward course, and left an evanescent halo in his track, and disappeared in

the immeasurable space where the Eternal has placed him, and whose unending day has known no night from the dawning of Creation until now. Catching a sight of a red handkerchief elevated on a pole, and doing duty as a flag, to indicate the spot where *something* could be had. Urged on by hunger, and in a sorry plight, I wended my way to the "Big Nugget Hotel." Peeping through a chink in the shanty, I observed a noisy crowd had gathered within, and were guzzling "nobbler" after "nobbler" of the fiery fluids, dispensed by a blear eyed ruffian and a tawdry dressed female. I hesitated some time before entering such dubious quarters, but as "necessity knows no law," I yielded to the importunities of a rebellious stomach, and ventured within. The murky atmosphere was redolent of Burton ale, nasty tobacco smoke, red herrings, old cheese, onions and Jamaica rum. As a great favor, I obtained a tin cupful of boiled tea with some molasses stirred in, and some *putty* bread and fly-blown mutton, for which I paid the moderate sum of seven shillings, equal to about $1.75. As I had my bed on my back, I retired to rest outside on a prostrate tree, as I had often done before, and slept as soundly as "the sceptred king" on a regal bed of down within his palace chamber.

THE BEST SOIL FOR FRUITS.

BY E. MANNING, HARRISBURGH, FRANKLIN COUNTY, OHIO.

Much has been said and written in regard to the cultivation of fruits, and the adaptability of certain kinds of soils for certain kinds of fruit. For instance, that soil will bring good apples, and that good pears, &c. This idea contains a good deal of truth; but not all truth. For example, I find after an experience of eighteen years in fruit growing, that my greatest success is in putting the different varieties of apples and pears in certain localities where the greatest results can be obtained. I am forced to the conclusion that nearly all upland soil varies very greatly in chemical compounds, from the fact when I planted my grounds first, I supposed any variety of apple or pear that would do well anywhere on it, every variety would do equally well. Such is not the fact, and for a want of a proper knowledge of adaptability of certain varieties to certain spots, I have been under the necessity to regraft one-half of my grounds. All the authorities I have on pomology say the Newtown Pippin is a slow grower as a general rule. I grant it, but plant it on soil that just suits it, and it is a very rapid grower—as much so as Fallawater, Baldwin or Fall Pippin. At first I had my Newtown Pippins scattered in different places. I soon discovered that in some places they had a stunted, haggard appearance—the leaves of a yellowish green appearance; in other places the trees grew rapidly, the leaves of the richest dark, silvery green color, remarkably beautiful at the distance of seventy-five yards. Where the trees were thrifty, I got the finest possible fruit; where they were unthrifty I got nothing but small gnarly fruit, not fit for sale at all. The only reason this variety has the name of a slow grower, is for the reason I have just indicated. Put in the right place and it is one of the best for profit. Nor is this all, the Ben Davis, Black Apple, and others will bear and do well where the soil is so thin, that the Red Astrachan, Fourth of July and Shockly would starve. The Bellefleur is another of peculiar habit; in some spots I find after it attains six inches or so in diameter of trunk, it almost entirely ceases to grow and be so unthrifty as to shortly end its life, while in other places not far distant, it is a very rapid grower. The only remedy I have found is to top graft with another variety that does well in the same locality.

We now come to pears. When I first planted the Beurre Clairgeau pear, I planted it on the strongest, or what I thought was the best pear soil I had. The trees were very unthrifty, scarcely growed at all, and what few fruit they bore were wretched small, nasty specimens. I tried this variety in different places, all on strong soil—all were a failure. I had condemned the variety as worthless, and top grafted all; meantime I had previously grafted one tree over, standing on high thin soil, and to my surprise, when it bore fruit it was of the largest and most perfectly developed—and the tree thrifty. I find the Beurre d'Anjou on strong soil is a rapid grower; on thin soil it will starve. I regrafted one over that stood still on high thin soil with Beurre Clairgeau, and it was very thrifty. Th Doyenne du Comice I find does far better on thin soil than on strong. The Golden Beurre of Bilboa is a very poor grower on thin soil, and rapid on strong. Had I left my orchard as I firs planted it, one-half would have been worthless, as on these principles do the whole or greatest success of fruit growing depend—on putting varieties where the soil will produce a thrifty tree and good fruit

Now, Mr. Editor, for the truth of this position, my trees are living witnesses. I could show you plenty of trees formerly so unthrifty as to be worthless, now regrafted with another variety suitable to the place, and doing finely. These evidences show beyond dispute, that in at least some localities where most persons would think the soil was very nearly the same, the chemical combination is quite different. As the combination of both wood and fruit of different varieties is very different, it follows that different varieties require different food. I have never seen any very perceptible benefit from leached or other ashes when applied to the pear; but all varieties of apples are greatly benefitted, the Newtown Pippin, I think, as much so as any other.

Now then, Mr. Editor, these views may seem rather strange, or they may not accord with your experience; if so I have only to say your soil then is not so varied as mine. To all whose experience is different from mine at this locality, these remarks don't apply. To all those who have had similar experience, the remedy I have suggested is the only one. I do not offer these views supposing all will be benefitted, but do think if they are followed out, at least some will be.

THE ORIGIN OF PRUNING STREET TREES.

BY CHRONICLER.

About three-quarters of a century ago, a skilful Scotch forester became forester for a wealthy nobleman in England, who admired all species of American trees, and had many growing upon his estate. He sent his forester to the "land of Washington" to see American trees in their natural forests, and gave him notes of introduction to several wealthy merchants in New York. When he arrived these merchants took him to see their rural summer retreats. Many of the mansions stood at the edges of forests, and some inside a little way, so in looking out at the windows the bare earth and naked stems of the trees were only seen. The forester expressed surprise at the uncomely surroundings of such fine dwellings, and advised improvements, which were afterwards fully executed. Two-thirds of the trees were uprooted and hauled off. In the winter following, all left were headed down; in the following midsummer, when the trees had bushy heads, a half was uprooted; the ground cleared and smoothed; the surface grubbed and all weeds hauled away; fresh loam from ploughed fields was spread over the surface three inches thick, and raked and rolled as fine as a flower garden; grass seeds were sown early in September, and soon the equinoctial rains made the whole grow, and soon the surface was covered with the young grass. Next June, when the families moved out, the grass had been mown and rolled smooth; all were delighted with the improvements.

These merchants had large trees at their warehouses in the city, and got them also headed down, and they became handsome trees—others did the same, the practice spread from city to city and town to town, until it became universal. Laboring men out of work in winter got ladders, saws and pole-shears and *trimmed* street trees, and still continue to make an honest living in that way. Some people want their *trimming done cheap*, and the *trimmers* cut the trees to suit the prices—many trees are killed by that. Remonstrance is folly, as people are *bound to have their own ways with their own properties.* The *Gardener's Monthly* has been indiscreet in slurring the industrious men who make honest livings in trimming trees to please the people.

GARDENER'S WAGES.

BY PETER HENDERSON.

We are constantly having applications for gardeners from our customers, in sections of the country were none have been previously employed; the applicants usually inquiring of us the rates paid in New York. As a guide to such, and to save us time in replying, we here state that the rates in the vicinity of New York, vary for single men from $25 to $60 per month and board, and for married men from $35 to $75, with house to live in. The average of the former may be given as $40 per month and board, of the latter at $50 per month and house. The grading of price paid of course is in the ratio of ability, or amount of charge to be taken. In no occupation is so much injury done as in the garden, grapery or greenhouse, by changing of men. In horticulture, the work done is nearly all prospective, and what the gardener does or neglects to do to-day will not probably show for three or six months after. Hence, the necessity of keeping the man satisfied in his position, for if not satisfied, and on the alert to move, it is not probable that he will interest himself as much in his work as if he was contented with his place. For this reason we have ever considered it bad

policy to displace a good man for a few dollars advance in salary. We, ourselves, even with all our opportunities of selecting men, and with our thorough personal knowledge of the business, have often paid foremen one-half more than we could have got equally good men for, just to keep them contented.

ORCHIDEÆ No. 10.

BY JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

Dendrobium Pierardii.

This is an old and very easily grown plant, which, to show its beauty, must be grown in suspended baskets. The plant being of a naturally pendulous habit of growth, it makes shoots of from two to four feet long, and will flower the whole length of the shoot, leaving all its leaves and the buds advance, and making new shoots after flowering to bloom the following winter. It requires plenty of moisture and heat while making its growth, and to be kept dry until the flower buds appear. The variety called latifolia is much larger in all its parts, and usually flowers later if kept in same house. It is much scarcer than this type. These varieties have been neglected of late years, but I consider them well worth a place in any collection. Their graceful habit and free flowering qualities added to its delicate white, almost transparent flower, make it very desirable.

Dendrobium macrophyllum giganteum,

Or as it is now called, Superbum giganteum. This is a scarce and very magnificent plant, in fact, I recollect but one very fine specimen besides the large plant here, which I am surprised at, for it is a very free grower if allowed plenty of heat and moisture in the growing season.

This should be grown in a suspended basket, where the drooping shoots will hang down four feet, and at the end of February be covered with its rich rosy purple flower the whole length, the flower being over four inches across. A hundred or so make a grand display. It has lasted in full beauty with me this year for a month. This plant is deciduous, losing its leaves as the flower buds advance, and commencing a new growth as the flowers open. I give this plant the high temperature of the East Indian house, and keep it dry when the growth is complete.

HOW TO GROW EVERGREENS FROM SEED.

BY J. C. WOOD, FISHKILL, N. Y.

Having a few leisure moments, and having had some experience in growing some of the hardier varieties of evergreens from seed, I thought your *Journal* would be a good medium to give many readers the results of our experience. In the first place, I would say our mode of growing evergreens from seed is not new, but with us has been very successful, and any one, either on a large or small scale, who wishes to try it, by following the simple directions here laid down, will be certain of success: In the first place, procure good seed, which is not a difficult matter, providing you order of reliable parties. I have bought seed of most of the larger dealers in the United States, and have generally found them good; however, for the past five years, I have bought my evergreen seeds of Thomas Meehan, of Germantown, Pa., and they have invariably proved satisfactory.

I generally order my seeds in the fore part of winter, or as soon as I can get a list of varieties and prices. Then I take moderately moist sand and pass it through a quarter sieve, so as to rid it of all stones or lumps, then take glass boxes or any other boxes of a convenient size for handling, then spread in the bottom a layer of sand, say ½ inch thick, then a layer of seed, moderately thick, say ¼ inch, and then a layer of sand, and so on until the box is filled, when the lid is fitted nicely to it, and then the box is taken outside in some sheltered place, usually against the side of some brick wall or building, and buried just under the surface of the ground, and then allowed to push just as hard as they have a mind to until time for sowing, which in this latitude is from the 1st to the 20th of April. As soon as the ground gets in nice working order I manure and plough it thoroughly, having prepared a year ahead a compost of muck and manure—about two parts of the former to one of the latter, then after leveling down with a good harrow, my ground is ready to lay out in beds, which is done in the following way: We use hemlock strips five inches wide and thirteen feet long, dropping two of them in a place across the piece, then I have prepared a lot of small posts as large as a man's arm, and from fifteen to eighteen inches long, and drop two at each end of the strip and two in the middle, then I stretch my line the whole distance across the piece, and draw it tight with a strong real, after

which I drive one of the posts in the ground, leaving out about seven inches right along the line. When I set up my board or hemlock strips, my post at the end answers for two ends of boards. I have three railing for each board, one at each end and one in the middle—three eight-penny nails we find sufficient. After the first line is completed, I take a common builder's lath, pine or hemlock, four feet long, and put one end of it against the post just set, which sticks up above the hemlock piece two inches, and drive another post down to within five inches of its length, which makes the bed just four feet between the posts or three feet ten inches in the clear, when I continue on in the same way until the bed is any desired length I may wish, or the length of my plot, which is about three hundred feet. After which I set a man forking and raking the bed, being particu lar to have it forked up good and dug and raked level, which is not a very severe piece of work, from the fact that the ground has been thoroughly prepared with the plow before hand. Then I lay the beds out with a drill, four inches apart, or a gang of them nailed together, the right distance apart, with their lower edges beveled, blunt wedge-shaped, then with two good boys or men the drills are laid out by mashing the driller down in the soft ground at any desired depth, according to the size of seed intended to be sown, then the seeds are dumped from the boxes in which they have been stored through the winter, into pans or measures of convenient sizes for sowing out of, and the seeds are strewn along the drills by hand, which with a little experience is done quite rapid. A good handy man will sow five pounds of such seeds as pines or spruce in an hour, and do it good, after which I cover the seeds with the back of an iron rake, walking backwards and drawing and pushing the rake carefully after me, after which I roll the ground moderately with a moderately heavy roller, or pack with a board. Then if the weather has the appearance of being dry for a few days, I give the beds a pretty thorough watering through the nose of a watering pot, or through a hose and force pump, after which I place on my shades, which are made in the following way: We take a ten inch pine board, thirteen feet long and one inch thick, as free from knots as possible, and rip it in two four times, making each strip two inches wide, thirteen feet long and one inch thick, upon which I nail common lath half inch apart, the lath being about one inch wide. I use shingle nails for the purpose, putting two nails in each end of the end lath, so they will not pull off in lifting about, which is necessary at different times through the summer for weeding, &c., when they are immediately placed on the beds before they are allowed to get dry, always taking the precaution to distribute poison pretty freely in the beds immediately after sowing. I have used with pretty good effect, Bennet's Sure Death and Coster's Rat Exterminater mixed with butter or lard, and spread on bread, the bread being cut up in small pieces and spread along the beds. I find it quite necessary to be particular in this matter, as mice are very fond of some of the different kinds of evergreen seeds, particularly pines and spruces. I do not have any trouble from birds like I saw at Mr. Douglass', of Waukegan, Ill., when I paid him a visit last June, from the fact that my shades fit so nicely, and the laths are so close, that birds cannot get in them. I find I have no further trouble with my seeds the first summer except to keep them free from weeds, which I do by hand weeding, always taking them as soon as they show themselves; the seeds usually come up according to kinds from ten to twenty days. Spruces usually show themselves first. I have in a few instances watered the beds occasionally, two or three times in the course of two or three weeks after the seeds were sown, but never after during the summer, and my experience has been a fine lot of nice evergreen seedlings in the autumn.

I treat the larch in the same way as the evergreens, and always prove successful. As for varieties I usually sow the Norway and American Spruces, Hemlock Firs in variety, Pines in variety, such as Scotch, Austrian, Norway, Weymouth, &c., Arborvitæ, American, &c., at the end of the first summer's growth. The size of our plants depends a little upon the summer. If a very dry and hot one like the two past, with the exception of pines and larches, they will be but from one and a half to three inches high, but if the season is moderately moist, they are usually double that size, and larches quite often from ten to fifteen inches high. In about the month of November of the first season, I draw leaves and cover the beds over about three inches deep, and then place on the shades to keep the winds from blowing them off when they are left until about April 1st, when they are raked off with a cover-toothed wooden rake and taken to the manure yard to rot—and I most always

find my plants bright and in fine condition. I should have stated if the autumn is reasonably moist, I remove the shades altogether about the first or middle of September, but if dry, like the fall of 1872, I leave them on all of the season.

Now for the results. The material for making a bed four feet wide and thirteen feet long, everything complete, including labor, 65 cents. I sow thirty-five rows of seeds in thirteen feet; each row will produce on the average, two hundred nice plants, which will make for the one length of 4x13 feet, seven thousand plants, which if you are growing for market, at the end of the scond year, will bring at least $2.00 per thousand, or $14.00 per length, which even at this low figure, if one is growing in large quantities, will pay very well.

With your permission, will give you the second and third year's treatment of small evergreens. [Please do.]

ANOTHER WORD ABOUT ORCHIDS.

BY GEORGE SUCH, SOUTH AMBOY, N. J.

You are quite right in what you say as to the increasing taste for Orchid growing in this country. A very considerable amount of credit, however, belongs to you, Mr. Editor, for your help in inducing amateurs to make a beginning, no matter how small, in the cultivation of these glorious plants.

Still there is one point, I think, on which you have not laid sufficient stress, and that is on the absolute necessity for would-be Orchid growers to make their beginning with good strong plants. Naturally enough all wish to get as much as possible for their money, and therefore most beginners aim to get as many *varieties* as they can for the sum expended. But this is quite wrong. Be the money to be spent much or little, the buyer should insist upon having *strong* plants of good, standard sorts, so that he may have a reasonable expectation of seeing his plants soon in bloom, and also a proper amount of satisfaction from the flowers when they appear.

This advice of mine may seem to "smell of the shop," but my aim is not in that direction. I do not advise persons without experience to spend much money for Orchids, under any circumstances, but the idea is that whatever money is spent should be laid out for fine plants *only*—that none other be taken, no matter how cheap apparently.

All who import Orchids from their native country, are sure to have among the number some that are botanically interesting, but the flowers of which are thoroughly insignificent. A large mass of *Govenia* now ornaments (?) the rubbish heap behind our orchid house, thrown out for the reason that the flowers are absurdly small and strikingly deficient in color. I am so much a lover of plants that I scarcely consider any of them "common or unclean," but I confess that I grudge the space occupied in the orchid house by so inconspicuous a plant as this *Govenia*. It is evident that eight or ten dollars spent on a fine Cattleya would give to most men more satisfaction than the purchase of twenty Orchids no more showy than the one above mentioned.

GAS TAR ON GREENHOUSE BENCHES.

BY PETER HENDERSON, JERSEY CITY, N. J.

In your May number, a correspondent mentions having had plants injured by the use of gas tar on the wood work of his greenhouse. We have used gas tar on the boarding for our benches for over twenty years without injury in the slightest degree to the plants; but it is put on boiling hot, and when dry covered with sand an inch or so in depth. I apprehend that your correspondent had not had the tar covered, and on the application of heat, gases were thrown off that caused the mischief.

Where it has got on the pipes, there is no remedy I think but having the portion taken out and subjected to a heat strong enough to burn it out. There was a notable instance of this kind that occurred in Brooklyn, N. Y., some dozen years ago. A Mr. Park, a well known florist, took it into his head one day to paint his pipes, and as black was a suitable color, and gas tar cheaper than paint, he set to work and painted the whole of them, numbering several thousand feet. All went on well enough until getting into severe winter weather, when the pipes had to become heated to a temperature high enough to throw off the deleterious gas, when off came the leaves in showers, destroying nearly every plant in the houses for that season. He tried every expedient to get it off, but all failed, and there was nothing for it but to take down the pipes and subject them to a red heat, which was completely effectual.

CULTIVATION OF THE FUCHSIA.

BY THOMAS F. WEBB, GARDENER TO MR. A. C. GIBSON, OAK LANE, PHILADELPHIA.

The Fuchsia is a universal favorite, and deservedly so, for there are few plants that come under the care of the gardener that are possessed of so many useful properties for the decoration of the greenhouse or cottage window; if we take into consideration the graceful habit, the abundance of blossoms and variety of color, and the length of time it continues in bloom, there are very few plants that are more worthy of general favor. The best time I find to propagate the Fuchsia from cuttings for growing fine specimens the following season, is from the middle to the end of August, and always select young healthy shoots for the cuttings; avoid the points of shoots from a flowering plant, for they will not make such fine plants as a young healthy shoot without flower buds upon it; cuttings from flowering plants, however, will come earlier into bloom, and upon very small plants. The best way that I know of is to select a plant of each sort we intend to grow, and plant them out about the middle of May in a well prepared compost of turfy maiden loam in a shaded situation, and by attention in giving them water when they require it, and pinching out the points of the shoots to prevent them from flowering, they will supply a stock of fine healthy cuttings. The best material for striking them is in equal parts of leaf mould and sand, a composition that almost any plant will readily strike roots in. I generally put one cutting in a thumb pot. If the cuttings are put in at the time mentioned, and sprinkled over the foliage with a fine rose watering pot, and placed in a close frame and well shaded from the sun, they will strike root freely without artificial heat. As soon as they commence to grow, give them a little air to prevent them from getting weakly. As soon as they are well rooted, they should be removed to a more airy situation, with as much light as possible, avoiding the sun, to harden them for the winter. About October they should be shifted from the small thumbs to three inch pots, which will be large enough to winter in, for the less growth they make during that season the better for them in future. A soil composed of turfy peat, leaf mould, and river sand, equal parts, is best for winter potting, for being porous it allows the water to pass off quickly. Those who wish to have their plants early in bloom should place them in heat in the month of January, in a temperature of from 45° to 50°, increasing the heat as the season advances. If not convenient to start them so early, let them rest till March, for if they are started early and then get a check to their growth, they will not grow freely afterwards. When the plants commence to grow, allow the soil to get rather dry, then turn out of their pots and shake as much of the mould off as possible without breaking the roots, and re-pot into five inch pots well drained, in turfy loam, turfy peat and leaf mould, equal quantities, and sand; water overhead with a fine rose pot and replace in a close frame or warm greenhouse, as near the glass as possible; shift from time to time as the plants fill the pots with roots. They will not stand the summer sun, the leaves will be scorched up. They must, if planted out, be placed in a shaded situation; if somewhat moist in the atmosphere they will grow far finer. If the syringe is used freely during dry weather, it will keep the plants clean and healthy, and free from the attacks of insects. In fact, if the Fuchsia is properly grown, it is seldom troubled with any insect but the green fly, which sometimes attacks it, but a fumigating with tobacco smoke (from the stalks of the leaves I find strong enough) in the evening: if damp, dull weather, it is better, as the smoke will not so readily escape. Syringe the plants freely the next morning to wash off the dead flies. Fuchsias laid on their sides, under the stage in the greenhouse during winter is the best place for them: they will, however, do in any cellar or out building, where frost can be excluded.

Dark Fuchsias, I find, are the hardiest when the plants are intended to be grown during the season in a well-ventilated house. Very fine plants can be obtained by standing the pots on a bed of well rotted dung and loam, and allowed to root through their pots into it, taking care not to remove them from their position.

RAPID POTTING.

BY PETER HENDERSON, JERSEY CITY, N. J.

A few months ago I gave an account in another journal, of the extraordinary rapidity attained by one of our workmen here, James Markey, in potting and other greenhouse operations. The statement then made created considerable comment and some doubts that there must have been error in the article. I stated

that he had accomplished the feat of potting seven thousand (7000) rooted cuttings in 2½ inch pots in ten hours. The fact of the accuracy of the statement being doubted, stimulated "Jim" to such a degree that he declared that he would yet pot ten thousand in the same time, which he actually accomplished by starting at 7 A. M. on the morning of May 8th, and finished potting ten thousand (10,000) verbenas by half past 5 P. M., of the same day, doing the work in his usual excellent style,—of course he did nothing but pot, the plants being brought to him and taken away so as to afford him every facility. Where it is known that potting two thousand is considered fair average-work for a hand, the wonder is how much this man has excelled his fellows. It is true, he has been with me since he was 12 years of age, (he is now 26) and has passed in that time millions of plants through his hands; but we have perhaps a dozen others who have been with us as long, who, having had equal opportunities, have shown no special ability. Markey is rather a small man, but of great muscular development, and excels in all feats of agility. I think it quite impossible that the feat of potting ten thousand plants in a day has ever before been accomplished; and as most of the florists and nurserymen in the country are readers of the *Monthly*, this wonderful day's work may have some interest for them. His work is almost exclusively that of potting young stock; and the average number he pots, when cuttings are in proper condition, is about five thousand daily.

EDITORIAL NOTES.

DOMESTIC

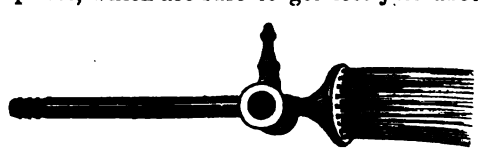
Disease in the Deodar Cedar. Recently we had an inquiry about a disease in the Deodar Cedar, unknown to us in this section. We have since seen the following in the *Farmer and Gardener*:

"Deodar Cedars are similiarly affected in this section. The loss of their branches is caused by insects of the *hylobius* class, whose larvæ are deposited under the bark, and whose soft inner surface they devour. The larvæ deposited in fall begin to show their presence in the spring when branches begin to die out; again, in the summer another generation seems to spring into existence, as we have noticed during September a number of trees affected in the same manner. This denotes that the insects must undoubtedly deposit their eggs both in spring and fall. The only remedy which we found to arrest the ravages was to cut off the limbs close to the body immediately upon showing signs of being attacked by the insects. This can be seen by the leaves turning yellow. The branches must be burned before the larvæ hatch and a new generation of insects is produced."

There is, however, another drawback, caused by an insect which often destroys the leader of the Deodar, and seriously affects its future perfect growth. This insect is the *pissodes strobi*, or white pine weevil, and whenever the leader shows signs of disease it must be cut out, a pole attached to the stem, and a side shoot tied to it. This must be made to replace the leader, and if attended to at the beginning of the trouble, the future growth of the tree will not be interfered with.

The Twin Nozzle. As a general rule, we have a suspicion of implements which are to do everything. The writer remembers well how proud he was in his boyhood days of a pocket knife, which was knife, corkscrew, screw driver, and one can now hardly remember what else, except

that its weight was that of a little tool chest, but after a year or so of experience it did seem really of no use to carry about every day so much which was to be used only once in a while, and perhaps it was this experience which gave us the prejudice we speak of. But in regard to this nozzle we may say that we also remember how with every syringe and garden engine came lots of pieces, which are sure to get lost just about



the time they are needed. Here are two very essential pieces which are needed almost every time the machine is used, all in one, so that it cannot be lost. We think it an excellent idea. It has been sent us by Platt & Green, of Philadelphia, although Wheeler, of Chicago is the maker.

Pinckneya pubens. This beautiful tree used to be one of the leading ornaments in the old

Landreth collection, (the site now occupied by busy Philadelphia) but we find it in no collection now anywhere. The following full account of it is from Mr. Berckman's department of the *Farmer and Gardener:*

"This fine tree was first discovered by the elder Michaux, on the banks of the St. Mary's, in Southeastern Georgia. It must be very rare, for during extensive travels through the South we have never met with it but once, and that was in cultivation at a planters near Newberry, in South Carolina, who told us that it was indigenous not far from his residence. Nor have we ever received specimens of it from any Southern botanist in exchanging plants; nor do we find it in any nursery catalogue. Michaux states that it is still more interesting, by the properties of its bark, than by the elegance of its flowers and of its foliage. Its flowers are white, tubular, with longitudinal rose colored stripes. The flowers are quite large, and collected in beautiful panicles at the extremity of the branches, rendered quite conspicuous by its ovate, pink colored floral leaves. Each flower has one of these floral leaves, which is bordered with rose color near the upper edge.

"It is a low tree, with numerous branches rarely more than twenty-five feet high, with a diameter of trunk of from five to six inches. According to Chapman, it is found on the marshy banks of streams in the pine barrens in Florida, and northward to South Carolina.

"Michaux carried seeds and young plants of it to a garden which he had near Charleston, South Carolina, and although the soil was poor, yet in sixteen years they grew to be about twenty-five feet high and seven or eight inches in diameter. This proves that the Pinckneya will grow in poor sandy land.

"According to Michaux, the wood of the Georgia bark is soft and unfit for use in the arts, but its inner bark is extremely bitter, and appears to partake of the febrifuge virtues of the *Cinchona*. He says that the inhabitants of the southern parts of Georgia employ it successfully in the intermittent fever, which, during the latter part of summer and autumn, prevail in that region. A handful of the bark is boiled in a quart of water till the liquid is reduced one-half, and the infusion is given to the sick. From the properties of its bark it derives its common name. Its botanical name is in honor of Charles Cotesworth Pinckney, a prominent citizen of Charleston many years ago.

"We hope that the Pinckneya will, ere long, be common in cultivation at the South. Its rarity has kept it in the background, while many other things of less beauty and value are extensively cultivated. The medical properties of its bark ought to be tested. If it be a good substitute for Cinchona, it should be known and grown on that account.

"The planter who had it in cultivation at Newberry, lived on the edge of town, and he had quite a large number of the young trees. We would give his name, but we have forgotten it; nor have we the diary which we then kept to refer to. It was in 1858 when we were there, hence the Pinckneyas, by this time, ought to be quite large seed-bearing trees. Named in honor of a worthy man, whose name is identified with the history of the country, it is a monument more enduring for Pinckney than one of bronze or marble.

"The habitat of 'Pinkneya' is very circumscribed, and, so far as we have ascertained, it is found only in a few localities near the coast of Georgia and South Carolina. Seed seems difficult to germinate, as we have failed with all we have ever received."

The First Fuchsia. Round and round the circle during the past twenty-five years, has been printed an account of how Mr. Lee first bought his first Fuchsia "from a poor woman whose husband brought it from the West Indies;" but the poetry has long since been taken out of the story by its being pretty certain the "first" Fuchsia was *stolen from Kew Gardens.* We now have another history in the *Rural New Yorker*, concerning *F. fulgens*, which we suspect is equally apocryphal. Still, as it will go its "rounds," we give it here:

"Some twenty years ago an old Scotch gardener told me a story which will answer very well as a sequal to the above, although I would not like to vouch for the truth of either. Many years after the introduction of the 'first Fuchsia,' the agent of Von Humboldt, who had lately returned from his travels in Mexico, called upon Mr. Lee, desiring to sell him the entire stock of a new fuchsia which they had brought home with them. Years before this, two Spanish naturalists, by the name of Mocino and Jesse, had met with a remarkable species of this genus in Mexico, the flowers of which were some four or five inches long and of a bright vermillion color. Of course, this was a treasure which any florist might be excused for coveting, especially as no fuchsia with flowers more than half as long was then known to European florists. When the agent, referred to above, informed Mr. Lee that the plants offered were of this long coveted species, upon which a botanist had bestowed the name of *Fuchsia fulgens*, (Glowing), it can be readily imagined how anxious he must have been to close a bargain for the stock of this wonderful plant. A thousand guineas was the price asked and paid, the agent giving Mr. Lee a written guarantee that the plants purchased comprised the entire stock brought home. In the days of no steamboats and few travelers visiting Mexico, there was no danger from competition, for several years at least, and the possessor of choice plants had little fear of rival gardeners. Mr. Lee propagated his new fuchsia as rapidly as possible, and as soon as the stock on hand would warrant, the plants were offered to the public at that good old price of a guinea each.

"But an unknown rival appeared in the market; Cunningham, of Edinburgh, Scotland, announced that he had good plants of the said new fuchsia, price half a guinea. Mr. Lee dispatched an agent to Edinburgh to learn what this meant, and if possible, ascertain where Mr. Cunningham obtained his stock, provided he really had the genuine sort. The said agent obtained no further information than that Mr. Cunningham's plants were the same as Mr. Lee's, and the number on hand nearly if not quite as great. Mr. Lee reduced the price to half a guinea; then Cunningham followed by putting the

price of his plants down to five shillings. This was too much for Mr. Lee, and he got out an injunction to prevent his rival disposing of more plants at such a ruinous (to him) low price. Cunningham paid no attention to the injunction but continued to sell his plants, while Mr. Lee held on, hoping to make Cunningham pay for the loss. The suit came up before the courts. Cunningham getting the trial adjourned from time to time, or carrying up the suit to higher courts, in order to increase the costs as much as possible. After baffling his opponent in every manner possible, and he (Cunningham) being driven to the wall, where he must show his title or have the case go against him, he brought forward his cash book, and showed that at a certain date in the same year that Mr. Lee bought the imported plants of the new fuchsia, he had purchased for a small sum of one of the axemen of the party, a package of fuchsia seed.

"Of course, Mr. Lee was beaten, and had the costs to pay, which had amounted to many thousands of pounds. It was said that the Lee's never fully recovered from this blow upon their finances. Mr. Lee got all he purchased, and the agent delivered to him every plant as agreed upon; but neither party probably ever thought that there were any seed in existence—at least not in Europe. Of course, Mr. Cunningham came as honestly by his plants as Mr. Lee by his first and last fuchsia.

Producing Double Flowers. To obtain double flowers in Geraniums, Petunias, and other things, is now well known. The process is to watch for flowers which have a tendency to form small petals on their stamens, instead of perfect anthers. The pollen of such flowers placed on the pistils of single flowers are likely to yield double ones.

This has long been understood by practical flower breeders, but not so well known to the general public. Col. Wilder long since employed this law in the raising of Camellias, in which field he was once very successful. The *Country Gentleman* thus condenses what Col. Wilder said about this recently:

"Col. Wilder stated, in a lecture before the Massachusetts Horticultural Society, that the Rhododendron and Azalea, distinct genera, had been hybridized, but no one had ever succeeded in making a hybrid between the apple and the pear, or between the raspberry and the blackberry, which belong respectively to the same genera. It was doubted for a time that hybrids could be obtained between the Vitis vinifera and V. labrusca, but Rogers, Unhill, Campbell and others have settled the question and produced them. Col. Wilder said that his earliest experience in hybridizing was in the floral kingdom, in crossing species and varieties of the Camellia. He discovered that, to produce double flowers, it was important that the pollen be taken from a *petaloid anther*, that is an anther born on a small petal, (the filament being flattened out in its first remove from its original form), and that this was still better if from a double flower. He also performed interesting experiments with the lily; the first was the red Japan and the Tiger lily. Seedlings were produced with different shades, from delicate rose to dark crimson. He also found that pollen preserved its fertilizing power a long time. In one instance, a camel's hair pencil, which had not been used for several days, was found with pollen on it. This was applied to the stigma of a lily, and produced impregnation. In another instance, he fertilized with pollen carried a long time in his pocket.

"The science of hybridization, says Col. Wilder, is yet in its infancy. To use the language of Dr. Lindley: 'We have but stepped over the borders, and the whole field of hybridizing lies widely spread before us; its boundaries are lost in the horizon, and we shall find them still receding as we advance.'"

D. W. Adams, one of the candidates for Governor of Iowa, is thus spoken of by the Chicago *Tribune:*

"Mr. Adams was born in Winchester, Mass., in 1832, and is a member of the famous Adams family, of whom that State and the whole nation are justly proud; He graduated at a good school, and at the age of 23, removed to his present home a confirmed invalid. In a rough-and-tumble fight with disease and poverty for nearly ten years, he was at last victorious over both. He became convinced, at an early day, that fruit-growing could be made a success in this State, and devoted his whole attention to its development. Experimenting with varying success for many years, he now has the solid satisfaction of having the finest bearing orchard in the Northwest, a large nursery (of fruit trees), a comfortable competence, and a wide and unsullied reputation. For many years he has been favorably known as the Secretary of the State Horticultural Society, an active member of the State and many different County Agricultural Societies. He has also been a generous contributor to many of the leading agricultural and horticultural papers, and his articles have always been marked for their clearness and conciseness. Lately he has been Master of the State Grange, and at present occupies the enviable position of Master of the National Grange. That Mr. Adams is a man possessed of rare ability, is beyond doubt."

Our readers will remember a contribution of Mr. Adams to the *Gardener's Monthly*, in which he pointed out that apple roots partook of the branching character of the trees grafted on them. We have always regarded this paper as one of the most valuable contributions to horticultural science.

Testing New Varieties. We find the following in the "dairy of a gentlemen" in the *Rural New Yorker*. We do not know how this hard-hearted fellow could write so cooly about this tender subject. Our thoughts have often been in the same direction, though we disliked to hurt any one's feelings in saying so. But as the "cat has been let out of the bag," we may as well say that if we were to "try" all the things sent to us for the purpose, it would require us to

set on half a dozen more men, and require an expenditure of about $3000 per annum. Sometimes it is a sore temptation, and we feel grateful for the good intentions of the donors. Here for instance is a case of pulses, lentils, and grains of various kinds from the East Indies No doubt one or two of the many scores of seeds might be found of benefit to our country, but we cannot try them. One lot of seven hundred kinds of hardy flower seeds was too great a temptation to withstand. There was such a chance to get "knowledge," to "get wisdom," and to get "understanding," that the writer had to take a couple of men for a week away from the regular work, much to the indignation of the foreman, who could "hardly get through as it is."

It is pleasant perhaps to feel that you are worth being tempted; but on the whole we rather subscribe to the doctrines of the extract below:

"These remarks were provoked by a letter asking me to accept of a few plants of a new fruit, the donor hoping that I would "find it worthy of commendation." That last remark exposes the motive, which is merely to get the thing indorsed, and perhaps, mentioned in this Diary. or in other words, advertised free in the *Rural New Yorker*. I beg to decline the honor; having pretty nearly escaped such inflictions in my younger days, I do not now propose to enter the arena and be shot at for telling the truth, or falsehood either. If such men as Downing, Hoopes, Meehan, Elliott and Fuller can be coaxed into trying every new fruit that is sent to them, well and good; for they have been fired at so often by disappointed originators of new varieties that no ordinary shot takes effect on their well-tried armor."

Gardening at Johns Hopkins Hospital. Mr. Johns Hopkins, of Baltimore has donated a large sum of money for a hospital in Baltimore. It is gratifying to note that Mr. W. D. Brackenridge has been selected as the landscape gardener. It is an encouraging sign when those who have charge of these public works have judgment enough to select the right sort of talent to do credit to these undertakings. The selection of Mr. Brackenridge is a rare instance of good judgment, and the Commissioners deserve encouragement for such a judicious choice.

The Benoni Apple in Iowa. Our correspondent, Dr. J. Weed, regards the Benoni as the best apple in all his orchard. Besides its excellent qualities, it makes straight nice trees.

EDITORIAL.

IT IS NOT GOOD FOR MAN TO LIVE ALONE.

The unity of natural law is an interesting theme. We discover a fact, and suppose it of little account; but it finally proves to be universally applicable, and another illustration of the one universal law which makes the whole world akin. "It is not good for man to be alone," has had its separate and special application—and yet it is but part of one great truth. Whether it is in the animal kingdom or in the vegetable, it is not good to be alone. The most perfect happiness is to get out of ourselves, and to gather in from abroad some stranger ones to share life with us.

This is the law of nature, urging us not only onward, but outward. We have love and regard for our immediate relations, but these bonds must be broken, and in the reunions of the broken circle, heaven showers the greatest blessings generally on those who know each other least. The agriculturist finds the same law. By close breeding he makes a race, and he can develop in this manner a few leading points by inheritance, but it is generally at the expense of other qualities, and even then does not last. Race after race appear in this way, only in time to disappear to be replaced by some new one from the original heterogeneous stock. In the vegetable world we find it still the same. Here we supposed the great natural hatred of close relationship ceased. A plant with its stamens and pistils in the same flower, was surely arranged especially for the perpetuation of an individual family race. But no—the discoveries of Sprengel, Darwin, Gray, and others, have shown that even these little floral children of both sexes, raised so lovingly together in one family home, finally look abroad for their future companions, and in this, strive to harmonize themselves with this one universal law. In some flowers the pistil protrudes itself from the floral envel-

opens long before the anthers are mature, and receives the pollen from strange flowers in advance of the maturity of the pollen in its own flower. This pollen as it advances to ripeness, performs the same office for other strange flowers; and thus, as we should say of animals, there is a continual infusion of new blood into family life. The rushes, (Juncus) *Luzulas* and sedge grasses (*Carex*) are familiar examples of this kind of cross breeding. Others depend on the agency of insects in the matter, which take on themselves the part of "the intimate friend," and introduce the strange but yearning parties one to another. In many flowers, as if for the very purpose, are arrangements for covering the insect with pollen, at the same time guarding the pistil, and which pollen the insect must take to the pistil of some flower before it can get the honeyed reward. The plant, as well as the animal, has learned to the fullest extent that it is not good for man to live alone.

Indeed when we come to look closely into things, we find that man alone of all created beings, understands less fully the depth and capacity of this universal law. He knows it is true of all these matters in the limited family circle, but he does not generally know that it is as true of man in society as of man as an individual, and that it extends to the whole of his relationship with nature.

We are divided into city and country; but if either try to live wholly to itself, it is unnatural. Man collectively as the country, or the country as a set of people living together, can no more "live alone" than one man or woman, one family, one flower, or any other part of nature can. There is in every human heart a response to this sentiment. The one brought up to city life, continually hungers for life in the country, and the ambition of many a country youth is to get to the city to live. These yearnings are natural, and are only unnatural whenever the country or the town endeavors to keep all to itself alone.

There are now in all our larger cities, men who recognize this natural principle, and who are striving to bring about these marriages of town with country in various directions. They form settlements in the country near to the town, and by the aid of railroads, bring the two closely together. In the vicinity of Philadelphia, there are many of them on all the leading railroad lines. Germantown and Chestnut Hill are much of this class, and they have the advantages of a railroad running closer into the heart of the city than any other, and this matter of time is of great moment to a business man. Ridley Park, on the southwest of Philadelphia, is another of these bridal spots, and of which we gave the wedding account last year. There was a sort of christening there early in June. The Board of Brokers of Philadelphia visited the spot, and the *Gardener's Monthly* was taken along to participate in the happy ceremony. Within the year, several beautiful houses have been, and others are being built. The boarding house is about finished, and already the projector feels the warm breath of popular encouragement.

These newer settlements learn from the errors of their predecessors. Once a company took a tract of land, surveyed it, took the plans and sold "lots." Everything else was left to chance. Society shaped itself, just as each individual might operate on the whole to make it. Very often they were to be settlements of certain classes. Here was an aristocratic quarter—there the location of mechanics. Perhaps this was to be a German settlement, and that a Hebrew quarter. People of a peculiar theological shade would herd together, or perhaps a literary, or a commercial class. The wants of man as among men were seldom considered. Roads, markets, labor, beauty—a thousand other things were left to shift for themselves. We know scores of such places struggling along, trying almost in vain to find their buried treasures. Here in Germantown, for instance, after a man has his "lot" secured, he finds it costs him more to "civilize it" than the original purchase, and even then it won't come up to the mark. The roads are in a great measure just as they were on the paper plans when the "lots" were bought, perhaps a hundred years ago. At various seasons people wade through the mud to their homes on stilts, or grope their way through dust clouds as through a fog. Having begun at the wrong end first, there are too many interests involved now. Though every one wants better roads, and are willing to pay for better roads, no one knows how to go about getting them. In these new places such as Ridley Park, all these things are thought over and arranged far in advance. They know people when they go to the country, want country in perpetuity. Hence small tracts and large tracts are devoted to park purposes, to be sustained by a fund from the purchase money. They know that rich and poor cannot live apart from one another, so there are lots at figures within the income of the respectable working

man's means, as well as for the man of wealth. Then the roads are all made, and well made, and shade trees planted, so that all the settler has to do is not to begin with a home, but to finish with one.

We are glad to see these efforts to bring the country and the town together, in a manner so adapted to modern wants. It is not yet all. Companies must yet take in hand to furnish even more than this. They must solve the society question, and the female servant question, and they must remember that most men now a-days have busy lives, and will need help even in the building of the houses, for the details of which so many have no time. But we are going beyond our usual space. Our object is to show that even the most home-like body must go abroad for its fullest happiness—that communities are under the same law, and that the greater the growth of a city, the greater is the need of the country being brought to the citizens, and really made ready for them. Such experiments as this at Ridley Park, are all in the right line, and we wish them every success.

EDITORIAL NOTES.

FOREIGN.

The Phylloxera, or Grape Root Louse.—Too much attention can scarcely be given to this very destructive insect, which Prof. Riley believes to have caused more trouble in American grape culture than anything else. Many things have been found which will destroy the insect without injuring the grape roots, but nothing thus far very practicable.

The *Garden* gives the following, which seems more practical than anything we have seen before:

'Sulphuret of calcium dug in around the roots of vines is considered to have a powerful effect in destroying Phylloxera. This gives rise to a true sulphuric acid, in consequence of the moisture of the soil and the gentle disengagement of carbonic acid. It serves also equally well to destroy caterpillars and other injurious insects which are frequently so difficult to remove from vegetation."

Cissus discolor.—It is a matter of surprise that this lovely climbing plant is not used for out-door summer gardening to a greater extent than it is. The *Garden* says:

"In the gardens of Mr. Linden, at Gand, there is now growing one of these plants which during the past year produced new shoots, the total aggregate of the length of which amounted to 1,625 feet. We are informed that the plant was grown in a mixture of coal ashes and spent tan."

Hoteia japonica.—This plant, which in some catalogues goes as *Spiræa*, and in others as *Astilbe* japonica, has been found one of the best white flowers for forcing that we have in American greenhouses The following hint, which we find in Mr. Robertson's *Garden*, will help those who have not yet tried to grow it:

"This beautiful hardy plant may be increased by division of the roots, or by means of cuttings, and plants produced in both ways soon make good flowering specimens, if well supplied with water during spring and summer, when the weather is dry. Divide the old plants into small pieces, each furnished with eyes, and plant them in good rich ground, a foot apart. Plants to be broken up must not have been forced this year. If cuttings are preferred, take them from plants that have done flowering, and strike them in heat. When rooted pot them off into 3-inch pots, and place them in a warm dung frame until they have become well established, after which harden them off. Plants raised from divisions may be put out in the latter end of May or in the beginning of June, well watering them in at planting time. In order to prepare them for forcing, they should be lifted in October, and plunged in leaves, as they root all winter. After they have been introduced into heat, give them plenty of water, or they will not flower."

Roses which will not Sucker.—We find the following in the *Garden:*

"The first idea of raising Briar stocks from seed has been claimed by M. Riviere for M. Guillot, a Rose grower at Lyons, who has raised his stocks in this way for the last twenty years. To M. Guillot, also, belongs the credit of ex-cogitating a means of preventing his Briars from producing suckers. Reflecting that suckers are nothing more than subterranean branches, which, like all other branches, must issue from the axil of a leaf, he considered that by inserting the bud on the part of the stem below the axils of the lowest or cotyledonous leaves (which are usually under the surface of the soil) he would deprive the stock of all power to produce suckers in future. In practice, M. Guillot simply removes the soil from about the lower part of the stock and inserts the bud close to the neck The result is that his Roses seldom or never show suckers, and if one chances to appear, it is sure to be from the buried part of the Rose graft, and not this from the Briar stock."

We have not much faith in, however, as those of us who have had experience in the raising root cuttings, know that it is not always by any means necessary for an "axillary bud" "above a leaf," to produce a growth. Adventitious buds come out anywhere, and it is these which give trouble in Rose stock.

The Name "Black Hamburg" Grape.—The histories of nations, peoples, or things, are often sought to be wrought out by tracing analogies of language, or by taking up some clue which language is supposed to afford. But language changes so arbitrarily, that it is dangerous to

accept its suggestions. When the Fastolf raspberry was introduced it was as much as the horticulturists could do to keep the people from calling it Falstaff. They had heard of this old fellow, but they knew nothing of the castle, and they held out for the Shakspearian name. In like manner we have had to argue with very smart people that the Vicar of Winkfield Pear was not the Vicar of *Wakefield* of Oliver Goldsmith, and it has been quite an effort to keep the original name pure and uncorrupted. Knowing all this we are disposed to listen to the following note from the *Journal of Horticulture*, although it seems to us at the time it refers to the Alhambra palace was nearly as well known to the English people as the city of Hamburg itself:

"'What's in a name?' Not much, perhaps, unless it leads to correct apprehension; and the name 'Black Hamburg Grape' does lead to the erroneous idea that the original Grape was brought to England from the German port of Hamburg, sometimes spelt Hambro', a place where the vine does not grow, except under hothouse culture.

"The Vine in question was introduced into England, I believe, by Mr. Warner, about 150 years ago, the original vine being found by him at the Moorish palace in Spain called the palace of Al Hambra, whence he called it the Black Hambra Grape. Now, the palace in question being little known in comparison with the town of Hamburg, the spelling was soon by many persons corrupted to Black Hambro', the final letter only being changed. When that spelling became general it, no doubt, somewhat obscured the history of the Grape; but the present spelling, Black Hamburgh, does so effectually, and it seems to me, therefore, desirable that the original spelling, Black Hambra Grape, should be at once destroyed.—T THOMPSON, *Welton, Brough, Yorkshire.*"

The Best Orchid. Since so much attention has recently been given to the growth of these curious and beautiful flowers in this country, it is well to know that what in Europe is called "one of the best," belongs to a class very easy to grow. Generally the Cypripediums will do in a cool greenhouse, almost as well as geraniums, or any common plant. A report of a meeting in Brussels, says:

"In the class (confined to nurserymen) for ten Cypripediums, there was no competition. The best Orchid in the whole show was contributed by Mr. Linden in the next class as a single specimen—viz.: Cypripedium villosum, a grand specimen, beautifully bloomed, with upwards of fifty flowers. This plant deservedly received the first prize, the second being awarded to Mr. Van Geert for a nice plant of Odontoglosum Pescatorhi, with five spikes of bloom."

Ficus repens. The *Journal of Horticulture* calls attention to this plant. We have found it one of the most beautiful things for covering the back walls of greenhouses. It grows in partial shade almost as well as the common ivy, and clings to the wall in the same manner. It is a first-rate vase or basket plant. We have found it endure the freezing point without injury. The *Journal* says:

"This is a creeping-stemmed plant, and attaches itself very closely to walls and woodwork. For the former it is particularly suitable, and grows more freely than on the lattor, as the wall retains more moisture. The plant has proved itself to be hardier than was thought years ago, it being now introduced freely into warm greenhouses and conservatories, and thrives there very satisfactorily. Very little rooting space is needed as compared to many other plants, for it throws out rootlets at almost every joint. Too much moisture must be guarded against with these cooler temperatures, otherwise the foliage will be apt to damp off."

Culture of Persimmons. There have been many attempts to select and cultivate persimmons in our country, over and over again; but notwithstanding they "have an apricot flavor blended with medlar," as our excellent cotemporary, the *Journal of Horticulture* says the Japanese kinds have, they do not grow fast in popular estimation. Still it is well to know all about persimmons, and the following is of interest in connection therewith:

"Messrs. Teutschel & Co., Colchester, have a sale at Messrs. Stevens' on the 10th, of a New Fruit Tree from Japan, the Persimmon, in eight varieties. It is the first time this tree has been offered in Europe. There have to be sold 105 trees received from Mr. Kramer, also some new and rare Lilies, Wilsoni and Krameri from Japan, Michauxii, Humboldtii, Puberulum, and Washingtonianum from North America, with Colochortus and Erythronium. The fruit tree is a Diospyros, respecting the proper name of which there has been some controversy; M. Carriere calling it at first Diospyros Kaki, afterwards D. costata; and M. Decaisne, who objects to both of these names, D. Schi-tse. It is a native of Eastern Asia, and has bright orange-colored fruit, which, in the climate of Paris are from 2 to 2½ inches in diameter, and have an Apricot flavor, blended with that of the Medlar. It will probably succeed against a wall in the warmer parts of this country."

Phajus grandiflorus is the name of a very popular warm greenhouse plant with us, which is, perhaps, as well known and as deservedly as any orchid grown—under the name of *Bletia Tankervillæ*. The following little bit of history from the *Gardener's Magazine*, also has some good hints for its culture and management:

"This is an old inhabitant of our gardens, having been introduced from China in 1772. It is a terrestrial Orchid of the easiest possible culture, and flowers most profusely about this time of the year. When well grown, it soon develops itself, and forms

fine specimens, with from twenty to thirty spikes of effective white, brown, and purple flowers. It is a gross feeder, and does well in a compost of fibrous loam, well decomposed hot-bed manure or leaf-mould and coarse sand. Drain the pot effectually, and then give an abundant supply of water at the roots when the plants are making their growth. Like many more terrestrial Orchids, it is found growing in its native country by the margins of streams. A little weak liquid manure may be given with advantage when it is in full growth, and this also greatly assists such plants of it as are pot-bound. Good specimens are very useful at this season for conservatory decoration."

Tritoma uvaria. It always has seemed to us that the botanical name *Tritoma* was easy enough and pretty enough for any one, and that the usual complaint of hardwords surely did not apply here. But our people have chosen to call it the "red-hot poker plant," and we really cannot see that it is any improvement on *Tritoma.* The English however call it "torch lily," and if our friends will insist that Tritoma is too hard for "the people," let us take to torch lily rather than to a whole set of fire irons, and all in a glow at that.

Japan Pea. Sooja hispida, is the name of the plant referred to in the following extract from the London *Garden:*

"'We claim the honor,' says the *Mobile Register,* 'of having started a new interest in Japan Peas, and we are proud of it, for the Japan Pea is undoubtedly one of the best things for our climate. It is easily raised, will grow on almost any soil, and yields enormously. As food for man we think it has no equal in the Pea or Bean way.' What is this Japan Pea?"

Peter Lawson & Son, the celebrated Scotch nurserymen, have gone into bankruptcy. Their assets are regarded as about $400,000, while their liabilities are reported at about $1,750,000. A Lawson Company, in which the old firm are interested, and which carrries on the chief part of the old firms business, is said to be unaffected by the failure.

Tower Grove Gardens. We are very glad to find that Mr. Shaw's princely benefactions to the people of St. Louis, but in which after all, any one from every quarter who goes to St. Louis also shares, is meeting with that recognition abroad which has long been accorded to them here. We find the following note in the *Garden:*

"The Missouri papers record an act of munificence on the part of Mr. Shaw, an English settler at St. Louis, which, though happily not rare in this country, is almost unexampled in the United States. It is the free gift of a noble park to the inhabitants of St. Louis. The tract set apart for this purpose is situated close to the town, is richly wooded, and abounds in picturesque scenery. It covers an area of over 300 acres, and its value is estimated at about £100,000.

Hardy Bamboos. Some of these recent introductions from China seem to be hardier than we have supposed. The *Garden* says of some recently introduced into France:

"The following species of Bamboo are stated by M. E. A. Carriere to be "very hardy" about Paris, viz.: Bambusa viridi-glaucescens, violascens, aurea, mitis, nigra, (perhaps a shade less hardy than the rest) simonii, and Metake. These are the most interesting species grown in the neighborhood of Paris, and are mentioned in the order of individual merit. M. Carriere adds that except in unusually severe winters even B. aurea and B. nigra do not suffer in the least from the cold there, and that all the kinds grow best, according to his experience, in a cool sandy-clay soil.

Gesnera elongata. For some years past this old plant has been coming into appreciation amongst those who love cut flowers in winter, about Philadelphia. When the flower is fully expanded it soon falls, but cut just before it opens, it remains as long in good condition as anything The rich velvety brown gives a peculiar character to it which those who are real artists in flower arrangements, know how to avail themselves of. We see also that it is being revived in Europe. The *Garden* says:

"Last December there were in the warm houses of the Museum at Paris some fine specimens of this Gesnera completely covered with brilliant scarlet flowers. This fine old plant seems to have become rather rare in France. It is one of the finest winter-blooming kinds, the flowers, although small, being very numerous and of the most exquisite deep scarlet color, while the habit of the plant itself is very pleasing and elegant. It was originally discovered by Humboldt and Bonpland in Peru, not far from the city of Quito.

Insects on Peach Roots. The discovery of small insects, known as *Phylloxera,* or grape roots, and their connection with the vine disease, promises to develop further knowledge. Mr. Berkely, in the *Gardener's Chronicle,* thus speaks of some similar appearances on peach roots:

"It is only by slow degrees that one becomes acquainted with the manifold diseases to which plants are subject, and where these depend either upon very obscure or minute moulds and insects, the progress is necessarily very slow. We have long since been acquainted with certain small excrescences on peach roots, which ultimately become more or less confluent and decay, but we have been quite at a loss to account for them. The excrescences which are so common on pear leaves have at last brought to light an extremely minute four-footed acaroid, belonging to the same category as that which is so destructive to Nuts and Black Currants, and one of which is well known as inhabiting certain gall-like tubercles on Lime leaves. This bids fair to explain a host of affections to which the

leaves of various trees are subject. We have now before us an explanation of the peach root excrescences. Mr. G. F. Wilson, to whom horticulture is so much indebted, has, in conjunction with Mr. Joshua Saunders, just sent to us from the Rev. J. Heyworth's, Westbury-on-Trym, some roots attacked by a minute insect which is clearly very closely allied to the Phylloxera. The way in which the roots are affected is almost precisely that in which the vine roots are attacked. The insect, either alone or in company, settles upon the roots, the tissues on either side swell from hypertrophy, and there is thus a little nidus for the insect which lives upon the juices. The little nodes gradually decay, and the whole root eventually becomes highly diseased. The insect is yellow, like the young Phylloxera, about one thirty-fifth of an inch in length, and two-thirds as much in width in the broadest part, with six legs and two three-jointed antennæ, which have two very minute bristles at the tip. How far this may be constant it is difficult to say, without an opportunity of examining the matter on the spot, for the insect does not travel well, and out of eleven pieces of root one only could be found bearing the little pest after very diligent search. Apparently the insects have just lost their activity, and are now gradually entering upon the coccus state, like the Phylloxera, for one or two specimens occur twice as large as the rest and much stouter. Further opportunities will doubtless occur of studying the insect, the discovery of which, especially considering its close resemblance to the Phylloxera, is of some importance."

Labels for Arboretums. This has engaged the attention of many persons in America, and though some plans are excellent as far as durability is concerned, they have been too expensive, or wanting in that handiness which is essential to a popular article. We find the following in a recent number of the *Journal of Horticulture*, which seems to possess the germs of a good idea:

"At the meeting of the Royal Horticultural Society, held on Wednesday last, Mr. Green, gardener to W. Wilson Saunder, Esq., exhibited some exceedingly useful plant labels. They consisted simply of cast iron of various forms for large plants; that part which is inserted in the earth was painted lead color, and that for writing on white. After the white portion has become thoroughly dry a coating of black paint with a goodly admixture of drying incorporated with it, is applied over the white, and four or five minutes afterwards the name may be written on it. A flat piece of board with a hole in it for the reception of the shank was also exhibited, and by means of this a rest for the hand in writing is obtained, without any fear of touching the paint. The names are written with a pencil consisting of a piece of wire inserted into a wooden socket. The writing is white, somewhat resembling that done with a fine camel-hair brush, and it is extremely lasting; for labels made and written on in the manner described were quite as good, clear, and distinct after five years' wear as those newly written on. For small pot plants zinc labels painted and written on in the same way are neat and legible. No delay need be experienced on account of wet paint, for a certain quantity can be painted first, and after a lapse of five minutes written on without halting.

Gardener's Wages. The following from the London *Gardener's Magazine*, applies with still greater force to America:

"The present position of the gardener is, then, a very unsatisfactory and critical one. Good places are becoming fewer every year. Many gentlemen who formerly kept good establishments in the country are getting to live in suburban villas, so as to be near to town, and are engaged in the intricacies of financial schemes instead of cultivating the love of a garden. Moreover, gardener's wages, as a rule, are much too low; taking a wide circle for an average, it would appear to be about 24s. per week. This is less than is paid to a good laborer, who has no need whatever to bring any scientific knowledge to the performance of his duty, while the gardener is expected to be acquainted with the thousand and one things which have to do with his profession. No one expects a carpenter, a builder, or a smith to work for laborer's wages, and yet even their work entails very little responsibility compared with the gardener, who has to battle against many enemies, among which may be named untoward seasons, when the crops are killed in the spring; grubs and insects that come sometimes (as the past summer) so numerously as to destroy all his winter provision; cross and cantankerous cooks, who never can have the right thing in the kitchen, and who frequently set the ball a rolling which knocks the gardener out. Then there are many other circumstances which makes situations less permanent than is desirable, because, as the saying is, a rolling stone gathers no moss, and this was never more true, perhaps, of any class of men than gardeners; for a change in an establishment removes the man and takes away his living, and the next that opens is, perhaps, a hundred miles away, and no traveling expenses allowed; thus the money goes, and sometimes the furniture too."

OBITUARY.

On the 7th of June, died John L. Russell, of Salem, Mass., and in his death, horticultural science loses one of its best friends, and the world at large another good man, of whom, as we recently said of Dr. Torrey, it has much too few. Unlike Torrey, and some others, he published little; but his knowledge was acute and extensive, and he freely gave of his vast stores to whoever needed. In vegetable microscopy he had few superiors; and in the minute fungi, which we know have such an immense influence on the order of things, his knowledge was perhaps equal to that of any living person. We believe the last paper he ever published was a contribution on this subject to the *American Naturalist*. In general botany and horticulture he always took a lively interest, especially those branches which called into play the higher intellectual powers. His means were not liberal, but such as they were, they freely went in aid of

progressive intelligence, in which he seemed to place his greatest hopes for the general welfare and happiness of mankind. In early life he was a Unitarian clergyman; but when the more liberal school under Theodore Parker made headway, and Mr. Russell found himself in sympathy with it, and not fully in accord with his immediate congregation, he resigned his charge, and became disconnected with the ministry, devoting his life to scientific study and research. His was one of those rare minds which loved truth and justice for its own sake, and he was always ready to brave the loss of fame or friends in behalf of what he deemed right. Indeed if he had any weakness it was right here. Did he but imagine any one was being trodden on who deserved a better fate, he was ready to enter the lists in his behalf at any cost. Often in these cases he could see only the injustice at the moment; but after the struggle was over, and alone or with intemates, the moisture would rise to his eyes in the fear that in the contest he might have hurt the feelings of those opposed to him. A letter now before the writer of this, and we believe near the last one he ever wrote, well illustrates something of this.

An article had recently appeared in high scientific quarters, which was unfortunately inaccurate in its statements. In his paralyzed condition he wrote pointing out the errors, but he added, "in times past he has been at my house and partaken of my hospitalities, and I would, under no circumstances, say anything to hurt his feelings; but in the interest of truth and science you can do it at some time without offence to any one." The correction was made as suggested; no one grieved, but rather we think with the thanks of the person corrected.

His little garden at Salem was always a treat to any visitor who loved flowers—not a square inch of ground but had something in it. We doubt whether so great a variety, so well cared for, ever grew together on so small a space. It well proved that it was not necessary to have great riches in order to enjoy floral life—and then how much was learned from these few well watched treasures!

Mr. Russell was an honored member of many learned societies, but few will miss him more than the Massachusetts Horticultural Society, in which he held the position of Professor of Botany, an honor every way well deserved.

SCRAPS AND QUERIES.

ARBORVITÆ AND GARDEN EDGINGS.—*B., Augusta, Maine*, asks, under date of June 4th: "Will you have the kindness to inform me as regards the following: 1. Is not this a good season to transplant Arborvitæ? 2. Which is the best and most hardy variety for edgings like box? The more dwarf the better. 3. How many six inch plants to the yard? 4. What is the full size of the Tom Thumb?

[Arborvitæ is transplanted in this part of the world all through the summer season. The earth has to be tightly packed round the roots, and this tight packing is not merely a light performance by heel and toe, but a ramming as if one was setting a post. If the weather be dry, or likely to be dry, water is given with the plant at planting. Unless the season be a very extraordinary one, or the situation very dry, they do as well as at any season. There is some risk in all.

2. The American globe, *Thuja globosa*, or the German globe, (*Thuja pumila*), are both good.

3. Depends on the age of the plants used. From four inches to one foot apart.

4. *Tom Thumb*, and its elder brother, the heath-leaved, or *Thuja ericoides*, are both good for dwarf edgings, though not as hardy as the common Arborvitæs from which they sprung. They have the same relation among plants as imbeciles among human beings—individuals which carry their juvenile simplicity into old age. All arborvitæs have the character of these the first few months of their existence, but these never grew out of their childhood's ways. They have not the vigor and hardihood of maturity. In the mild climate of Georgia, we believe, are specimens ten feet or more high. We have not seen any so large North.]

HARDY HERBACEOUS FLOWERS FOR JUNE.—*M. B J., West Philadelphia, Penna.*, writes: "Will you please say in the *Gardener's Monthly* what you would regard as the best hardy herbaceous flowers to blossom early, say up to middle

of June. About a dozen of them with their colors for a selection. We usually leave here during the summer, and do not care so much for late blooming things, and want some things which will take care of themselves from year to year."

[It is not easy to select the *best* for a brief list like this, but the following will be good enough for most people: Achillea tomentosa, Lysimachia paniculata and Hemarocallis graminifolia for yellows. Blue—Salvia pratensis, Iris Virginica, Anchusa aspera, or A. bohemica. Rosy or red—the ragged robin (*Silene* not the Lychnis) Geranium sanguineum, Achillea millefolium rubrum. Purple—Pentstemon grandiflorus, Campanula nobilis, Gladiolus communis. White—Anemone Pennsylvanica. Besides these of various colors are Sweet Williams, Scotch Pinks and Peonys. These are mostly all over by the end of June.]

SEEDLING CALCEOLARIA.—*P. & P., La Grange, Ind.:* "We send you a flower of a seedling Calceolaria, which we have raised from a packet of seed of the 'James' International Prize' variety. Please inspect it and give your opinion as to its worth, &c."

[The flower was squeezed flat in a letter, and had lost all color, becoming brown as it dried. It appears to be a very good variety—as good at least as the average of improved kinds.]

HORTICULTURAL DIRECTORY WANTED—For Philadelphia, Baltimore, Washington, and places adjacent.—*Mr. Bateham*, says: "As a large number of horticulturists from distant parts of the country will doubtless visit Philadelphia and Washington about the time of the meeting of the American Pomological Society in September, would it not be a good thing to publish in the *Monthly* before that time a sort of directory or guide to the places of interest to the profession in these two cities and their environs? Mention the principal parks and cemeteries, florist and nursery establishments, with a few good examples of landscape and suburban home adornment, describing the leading features of each; also the best means of reaching them, and of going from one to another, so that persons who cannot spare time to visit them all, may choose such as are of most interest to them."

[Mr. Bateham's idea is an excellent one, and we would make such a list at once if we knew positively that it would be agreeable in every case to have visitors to the gardens or grounds. If those of our friends who have anything of interest in the horticultural line, and have no objection to visitors enjoying them, will notify us of the fact, with route, and at the same time giving hints as to any public gardens or grounds that may be near them, that could be seen at the same time, we will try a list as Mr. Bateham suggests. Of course this applies to commercial as well as to private places.]

TO INQUIRERS.—The editor will with pleasure respond to inquiries through this department, but has not the time to spare for answering inquiries by private letter.

NAMES OF CHERRIES.—*D. S. M., Bridgeville, Del:* It is difficult to name fruit with absolute certainty from a few specimens only. Yours appear to be: 1. May Duke; 2. Early Purple Guigne; 3. Belle de Choisey; 4. Early May. We would, however, say to this and every other reader, never to take any one person's opinion as final in regard to a fruit's name, if it is intended to disseminate the stock. Try several persons, and if they all agree, it may be regarded as conclusive.

DESTRUCTION OF APPLE TREES.—An Iowa correspondent says fully one-half the young apple trees in Northwestern nurseries were killed by the winter.

BOILER FOR A PROPAGATING HOUSE.—An Iowa correspondent inquires about a small hot water boiler for a propagating house 12 feet by 35. We should not think of any sort of a hot water boiler for a house like this, and put our reply in this shape, so that if there be any objection to this opinion, we may hear of it. For such a small house as this we should certainly heat by a common pipe or flue.

SOUTHERN POMOLOGICAL AND HORTICULTURAL SOCIETY—Auxiliary to the National Society. We see a proposition of this kind suggested by Mr. Leighton, of Norfolk, and it is an excellent one. Why may not all our State societies be made auxiliaries also? In some sense they are now, as they generally send delegates; but there might be a closer and more useful relationship.

REMEDY FOR THE ROSE SLUG.—*E. H. B.*,

Geneva, Kane County, Ills., says: "I would call your attention to my communication in regard to the Rose Slug, published in *Gardener's Monthly*, August, 1872, page 239, and request you if you are so unfortunate as to be troubled with the pest to give the remedy a trial this year. Try black pepper as directed in my letter on your cucumber vines for the Striped Beetle."

WHAT IS A HYBRID?—*E. H. B.*, asks: "Some one defines it as a plant which is produced from a cross of different species, the seed of the Hybrid being unfertile, or refusing to germinate. The Hybrid being only reproduced by cuttings Is this correct?"

[It is difficult to define "hybrid." We are not able now to define "species." Species, varieties, and individuals are but grades of one another, and we are unable to tell where one ends, and the other begins. The old test of sterility has been found wanting also. Very closely allied plants, which no one would call species, are sometimes sterile in their progeny, while others which seem widely separated, give very productive crosses. Then the "hybrids" themselves are sometimes sterile and sometimes not. The mule, utterly unproductive in a cool country, is tolerably fertile in the tropics. We should say that "a hybrid was the offspring of what are commonly regarded as distinct things," without introducing any question of sterility or species.]

FRAXINUS ORNUS.—A Doylestown correspondent sends us a specimen of this pretty tree for name. It ought to be more grown. Its foliage is as good as the best of Ashes, while the clusters of white flowers are quite showy.

HAWTHORN.—*C. L. J., Waynesville, O.:* "I forward by mail some cuttings, &c., of a thorn, to see if you can name it through the *Monthly*. I discovered it in the woods, ten years since; have looked in vain for other plants of the same, but find none. Some English and Hibernia friends here think it allied to the English thorn, but on comparison, they are not alike. I have shown it to other persons repeatedly, but they fail to recognize it. It is about eight feet high, well branched from the ground up. I think it would make a fine ornamental hedge plant, though I have not tried to grow it from cuttings."

[There are many varieties of the English Hawthorn, *Cratægus oxyacantha*. This is one of them, with leaves rather more divided than the common forms.]

RHODODENDRONS.—As we are writing, Boston is having a rhododendron show. We have had kind invitations from Prof. Sargent, Mr. Wilder, and other friends to come on and enjoy it; but unfortunately our duties here keep us from the great floral feast. It is only when we get perfectly desperate that we get up and run away somewhere, and we may do that yet this summer; but we have not quite reached that point yet. Still a rhododendron show is a great temptation, and we really envy our Boston friends. The progress which gardening is making in that city reflects credit on its public spirited citizens.

LILY FROM TYRO, MISS.—Some time in the winter a subscriber from this part of the world sent us a *root* for a name. It is now in flower, and proves to be Lilium superbum.

HEATING BY HOT WATER.—*F. L. S.*, says: "I have been much interested in the different opinions given in your excellent periodical, the *Gardener's Monthly*, upon heating by hot water, but I do not yet understand as well as I would wish. I think a correspondent some months since, who signed his initials F. N. F., if I remember correctly, spoke of heating lofty buildings. This it is in which I am more particularly interested, and would feel greatly obliged for further information from the correspondent referred to."

NAMES OF PLANTS.—*W. T., Union Cemetery, Kansas City, Mo.*, writes: "I send you a sprig of a beautiful bush, which is growing on a high rocky place. The fragrance of its bloom is very sweet. [Rhamnus lanceolatus.] Also the bloom with stem and leaves of a little plant, which I don't remember of meeting with before. It is growing on rocky ground in the bush, near a spring. I would call it a primrose, but it has but four stamens. [Aphyllon uniflora.] Please give me their name through the *Monthly*."

CROSS FERTILIZATION.—"Paris, 14th June, 1873. The Rev. L. J. Templin and myself are pretty well agreed as to the cross fertilization of corn, but I fear he has slightly misunderstood me on one point. He says: 'Mr. Arnold's experiments seem to be conclusive that the immediate fruit is affected by the cross.' I would

now beg to say that in my opinion it is a rare occurrence for foreign pollen to have an immediate effect upon the pulp surrounding the seed of an apple or pear. I hope the important point in my article in your April number will be kept in view, viz.: *superfœtation*, in other words, one individual seed being formed by the joint influence of several varieties of pollen upon one stigma. This I am confident will be found to be true as regards corn, and I am of opinion will be found to be equally true with various fruits.

CHARLES ARNOLD."

BOOKS, CATALOGUES, ETC.

LANDSCAPE ARCHITECTURE By H. W. S, Cleveland. Chicago: Janson, McClurg & Co. This is an essay, or rather a series of essays, by a distinguished landscape gardener, on the arrangement of cities, parks, gardens, and grounds, as suited to the wants of man rather than as an abstract art. For this reason he has chosen Landscape Architecture as a term to express the direction of his thoughts, rather than the term landscape gardening. Mr. C. has written this little book, he says, especially in view of the wants of the West, in the hope that new towns, which are continually springing up, may avoid the mistakes of older ones. All who have given intelligent attention to the arrangements of old places, well know what excellent examples most of them afford as to what not to do, and it is somewhat astonishing that western people do not improve on the mistakes of others. New York and Philadelphia—we refer to them only because we happen to know more of their wants and weaknesses, and not that they are alone—both found to their sorrow that beauty builds up a town as much as business; and Fairmount and Central Parks, with other public works of a similar character, are the patches placed on in the endeavor to improve the original misfit. Yet numberless new places are going up utterly ignorant of the wonderful beauties they possess, which would be worth half their town to the people did they know their value, and take care to preserve them. This is just as true of small settlements, and indeed of individual properties as of cities; and thousands annually destroy beauties in building, indeed make things ugly and inconvenient because they knew not of the advantages by which they were surrounded. Most people suspect this before they begin to build. It is quite possible that the propriety of consulting a landscape gardener occurred, or was suggested to them; but it must be confessed that the results as shown by the works of some excellent landscape gardeners, have not been always such as to encourage the tasteless to make use of their services. Garden artists too often forget that stern utility is at the bottom of most garden arrangements, and not merely the creation of some living picture of fairy land. Garden art should not bow wholly to utility—at the same time it should never be forgotten that this is not a cold, hard hearted, barren world. After our physical wants have been served, there is nothing which "pays" like beauty; and those cities, and those individuals who the most fully appreciate this, are destined in this great country to be classed among those who are "the healthy, wealthy and wise."

We are glad to find a landscape gardener of Mr. Cleveland's great reputation working so well in this field. His little book cannot cost much from its size, and we should like to know that it has a good circulation.

CATALOGUE OF W. WATSON, BRENHAM, TEXAS. The publisher desires to return thanks to Mr. Watson for a kind notice of the *Monthly* which appears in his new descriptive catalogue just issued. The catalogue is a neat pamphlet of fifty pages, and gives pretty full descriptions of the plants and fruits popular in the South.

NEW AND RARE FRUITS.

BEATRICE PEACH.—In various papers there are notices recently of the Beatrice peach, in which the writers "understand" such and such things "about" it. Information is wanted as to what people know *of* it. It is always to be taken with considerable allowances when anything is announced as so very much earlier than other things. Still some people have faith in the Beatrice. One peach raiser in Maryland has set out 15,000 trees of it the past spring.

THE CAROON CHERRY.—The Bucks County *Intelligencer* says the most popular cherry of that region is the *Caroon*. It is, it says, rather large, solid, white and pink, and probably belongs to the Biggareaus. They are excellent for eating, baking or preserving.

SOULARD CRAB APPLE.—"The Soulard apple is a variety originated at Galena, by James G. Soulard, for forty-five years a nurseryman and orchardist in the West, and the first President of the Jo Davies County Horticultural Society. The Soulard apple has been grown and fruited many years as far north as St. Paul, and its hardihood is established beyond all question. As a dessert fruit the Jo Davies County Horticultural Society voted unanimously that it was the best of any known variety of its season—a compliment paid no other sort.—*Gardener's Monthly.*"

This implies that the Soulard won't grow north of St. Paul. We beg to assure the *Monthly* that the Soulard grows at Pembina, more than 300 miles from St. Paul. The Soulard of all other crabs, is the most valuable. It cannot be used as an eating apple. It is bitter, worse than a quince, but for preserves it is quite equal if not superior to the quince. We consider it to day the most valuable fruit grown in the Northwest.—*Farmer's Union, Minneapolis.*

THE CRAWFORD AND STERLING STRAWBERRIES.—The following is a description of the two berries, written by F. R. Elliott in 1870:

"At the Exhibition of the East Cleveland Horticultural Society, held in June, the 10th inst., Mr. Matthew Crawford exhibited some very choice new seedling strawberries, and we are indebted to him since then for samples from which to make notes and descriptions, as follows:

"The *Margaret* is an unusually deep colored berry, and to the eye of an expert in fruits it exhibits richness in the quality of its flesh with delicacy, and not too much of acid to make it pleasant to eat out of hand, but is too dark, we think, to ever become popular as a market berry. It is about as large as the 'Triomph de Gand,' is more uniform in shape, being of broad, conical form, with the surface more or less uneven. Its color is a deep purplish or liver-like red, and on the upper or sunny side, the seeds are mere dents, but on the under side the seeds are yellow, sharply pointed and prominent; the flesh is firm, of a crimson-red in centre and darkening toward the outer rim; is juicy, rich, and not too acid. The *Margaret*, Mr. Crawford writes us, has taken two first premiums, one for the best seedling and one for the best flavored berry.

"In the *Sterling* the originator has a berry that, if its productiveness half equals its appearance and firmness, will become a popular market berry. In appearance it resembles a well formed and thoroughly ripened 'Triomph de Gand'; being of a regular broad or obovate, conical form, a rich, glossy, vermillion-red, thickly studded with golden yellow seed prominently on the surface. The flesh is quite firm, of a vermillion-red, and having a white rim around the core, is rich, sprightly and brisk, slightly acid, but not so much so as the 'Wilson.' In appearance, size and quality, it has all the good points of a market berry, and it only remains to be seen how productive it is in varied soils and locations."

NEW AND RARE PLANTS.

PERPETUAL FLOWERED CARNATION, LA BELLE.—Of late years the perpetual flowering carnations have made themselves essential to all who have flowers. Few persons outside of the large cities have any idea of the enormous quantity grown for cut flower purposes. Many a greenhouse is devoted entirely to their growth, and the flowers varying from two to five dollars per hundred are readily sought for by persons in the cut flower trade. The worst feature is the straggling habit of growth, but when attached to frames and trained, this bad habit is turned into "just the thing."

The accompanying is an illustration of *La Belle* as recently exhibited at one of the London shows. It shows how they may be trained to

advantage. Besides this they are led over flat trellises, and where the greatest number of flowers in the smallest possible space is not an object, in which case the balloon trellis has the advantage; a flat trellis makes a very pretty affair. Of this new variety, *La Belle*, the English papers speak very enthusiastically. A London paper says:

"The forerunner of a new race of varieties of the highest possible value. The flowers, of the purest white, are very large and smooth, perfectly double, and delightfully fragrant, and are produced all the year round in such profusion that one or more plants should be grown wherever cut blooms are in request."

A NEW STYLE OF PANSY.—The London *Journal of Horticulture* says: "M. E. Benary, a horticulturist at Erfurt, announces a new Pansy, which has large flowers of a splendid ultramarine blue, with a well formed eye of very deep violet-purple. They are also of good substance, have strong stalks, and stand well above the leaves. M. Benary has named it 'Viola tricolor, var. maxima Emperor William,' and states that the variety reproduces itself with certainty from seed."

PRIMULA JAPONICA.—Though so recently introduced, this has already been broken up into many distinct varieties. Mr. Bull announces the following kinds:

Primula Japonica alba. This variety produces white flowers with a golden yellow zone round the eye.

Primula Japonica carminata. Pure carmine red, with a maroon crimson ring round the eye.

Primula Japonica lilacina. Eye surrounded by a zone of orange red, shading outwards to a beautiful rosy lilac, the outer portion of the corolla lobes being white.

Primula Japonica rosea. Very distinct, with flowers of a lilac rose, and having a crimson ring round the eye.

Primula Japonica splendida. Flowers of deep bright magenta, the zone of a rich, bright crimson color.

HYDRANGEA PANICULATA GRANDIFLORA.—This is a handsome shrubby plant, from 20 to over 30 inches high, introduced from Japan about the year 1864 by M. Siebold. The flowers, which are produced in a dense, handsome panicle, are at first white, and afterwards pass through various shades of rose color to a violet-red, changing at last to a greenish brown, so that their appearance varies from day to day. It is exceedingly ornamental, thrives in almost any soil or position, is quite hardy, and can be propagated with the greatest facility from cuttings.

CUT-LEAVED WEEPING BIRCH.—In a list of rare trees, (to the *Iowa Homestead*, we believe), Mr. D. W. Adams, of Waukon, Iowa, says: "The Cut-Leaved Weeping Birch is another tree comparatively seldom seen here, which is equally hardy, very thrifty, and with age becomes a perfect beauty. It should be better known. A specimen in my lawn, planted nine

years ago at one year old, now measures twenty-four inches in circumference at the ground, and is much admired."

BOUVARDIA VREELANDII figured a few years ago in the *Gardener's Monthly*, is also becoming popular in England. Mr. Standish says of it: "As a Bedding Plant, this beautiful plant, which is so universally admired for greenhouse cultivation, has proved itself unequalled for bedding out. If placed in a rich border about the middle of May it will very speedily become a mass of flowers, retaining its beauty till late in the autumn; the plants, if then lifted and protected, will continue to bloom some months."

ABUTILON BOULE DE NEIGE.—The rather new white Abutilon is now generally known and valued for winter flowering. It is not however a very clear white. This is said to be an improvement. The flowers, as the name indicates, are of the purest white. The plant, which is of the most robust and vigorous habit, throws its flowers outside the foliage, thus making it always attractive. It has successfully withstood the winter in the South of France, which will make it invaluable for sub-tropical planting in this climate.

AQUILEGIA LEPTOCERA LUTEA.—We can endorse what is said of the following in the *Garden*, as we saw it in flower in a garden near Philadelphia last summer. It is about two weeks after *Aquilegia canadensis* in blossoming, and continues through most of the season:

"We are much pleased to notice the introduction of a new yellow-flowered Columbine (Aquilegia leptocera lutea), which is thus described in the catalogue of Messrs. Backhouse & Son, York, just received by us. 'This is unquestionably one of the finest perennials we ever introduced. Its large golden-yellow, long-spurred flowers are produced in great abundance from densely-tufted plants, which maintain a long succession of bloom. This species has not yet flowered with us; but magnificent dried specimens of the blossoms have been forwarded to us from North America. These are not unlike very large examples of A. cœrulea, with long straight horns. So far as we can ascertain, this plant has nothing whatever to do with A. aurea of Roezl, of which the flower is scarcely half the size, of a sulphur yellow shaded with green.'"

ANEMONE JAPONICA.—Is not this good old plant again losing caste amongst us as a bedding plant? We possess three or more varieties, and very beautiful objects they are when in bloom. They thrive well in moist situations, and will flourish on a damp cool soil, flowering freely where many plants would not. Besides you may plant them almost anywhere in a flower garden, and they seem to prosper with ordinary attention. Where the summer display is not required in perfection until late in July or August, this is a peculiarly useful subject for the centre of beds, as it tends to increase the variety of contrasts, and to multiply effects, such as are not seen where vivid colors alone are displayed or employed.—WILLIAM EARLEY, in *Gardener's Chronicle.*

DOMESTIC INTELLIGENCE.

THE SALWAY PEACH.—In speaking of this new late peach, which is exciting considerable interest just now, both in England and this country, Mr. Pullen, in a note to the *Maryland Farmer*, says: "The Salway Peach is, as you will observe, a large yellow freestone of very high color and remarkably handsome. It ripens after the Smock and therefore adds several days to the peach season. It is an English peach and was first imported about five years ago."

Mr. Neff, of Ohio, having fruited the Salway, says he finds it hardy, a good grower and productive, and endorses all that Mr. Pullen says in its favor. It was briefly noticed in the Report of the Committee on Foreign Fruits, to the American Pomological Society, at Richmond, last fall, as "a variety of considerable promise for all Southern peach growing localities, and described as large to very large in size, creamy yellow, with a thick, deep yellow flesh stained

with red at the stone, and in season according to climate, from October first to November 10th." In the middle cotton belt it will ripen from the 20th August to 15th September.

Mr. Gaines, of Alabama, informs us that he has fruited it the present season and thinks well of it, but decidedly prefers the Picquet's Late, which ripens about the same season. Both are undoubtedly very fine varieties, and should be generally tested for market purposes, as good peaches never fail to command high prices "about these days."

MUSHROOMS AT WASHINGTON.—The system so successfully practiced by the Parisians for several years past of propagating the mushroom, and thus insuring a constant and fresh supply of this delicious escu'ent, has been introduced in the gardens of the Executive Mansion in this city by Mr. T. P. Hoover, under the direction of General Babcock, Superintendent of Public Buildings and Grounds. Mr. Hoover has paid a great deal of attention to this subject, and has for the last two years been experimenting in San Francisco, where he was very successful in raising the mushroom by means of spawn. There is no delicacy that combines to the same extent the best qualities of the animal and vegatable kingdom, and none that is more thoroughly appreciated by the *bon vivant* and epicure. Heretofore the mushroom could only be obtained in its purity in certain seasons, and we were compelled to rely almost entirely upon the canned preparations, and even then doubts were entertained as to its genuineness—the wild species often containing specimens that were poisonous. The bed planted by Mr. Hoover is in a flourishing condition, and we understand that he has also supplied the Arlington and Wormleys with a similar arrangement in their cellars. The cost of construction and planting the bed is only about one hundred dollars, from which an almost unlimited supply of this desirable vegetable can be obtained and multiplied indefinitely by spawn at a trifling expenditure. After the bed is prepared and the spawn is procured, there is very little additional expense, inasmuch as the proper degree of heat is derived from the furnace or steam with which the buildings are warmed. They only require a certain degree of heat and moisture, are easily managed, and I should not be surprised if the system were generally adopted by the leading hotels throughout the country.—*Daily Paper.*

HORTICULTURAL NOTICES.

AMERICAN POMOLOGICAL SOCIETY—FOURTEENTH SESSION, AT BOSTON, COMMENCING SEPTEMBER 10, 1873.

PREMIUM LIST.

Five Hundred Dollars has been offered by the Massachusetts Society for Promoting Agriculture, and *One Hundred Dollars*, each, is tendered by the following gentlemen, for Premiums, and the promotion of the objects of the Society, viz.:

Hon. Albert Fearing, Pres't. of Hingham Ag'l Soc.
John Cummings, Esq., Pres't. of Middlesex Ag'l Society.
Dr. Nathan Durfee, Ex-Pres't. Bristol Central Ag'l Society.
Wm. Knowlton, Esq., Ex-Pres't. Worcester S. E. Ag'l Society.
Charles O. Whitmore, Esq., of Boston.
Gardner Brewer, Esq., of Boston.

The following Prizes will therefore be offered, in accordance with the above generous donations:

APPLES.

For the largest and best collection of Apples, correctly named, from any State or Society, three of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the larsest and best collection of Apples, correctly named, grown by one individual, three specimens of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and $25.00

PEARS.

For the largest and best collection of Pears, correctly named, from any State or Society, three of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the largest and best collection of Pears, correctly named, grown by one individual, three of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

GRAPES.

For the largest and best collection of named Native Grapes, from any State or Society, three bunches of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the largest and best collection of named Native Grapes, grown by one individual, three bunches each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the largest and best collection of named Grapes grown west of the Rocky Mountains, two bunches each variety, Premium, the Society's Silver Medal and Fifty Dollars.

For the largest and best collection of Native Grapes, correctly named, grown south of the Southern line of Virginia, Tennessee, Missouri, &c., two bunches of each variety, Premium, the Society's Silver Medal and Fifty Dollars.

For the largest and best collection of Grapes grown under glass, two bunches each variety, Premium, the Society's Silver Medal and Fifty Dollars.

PEACHES.

For the largest and best collection of Peaches, correctly named, from any State or Society, three each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the largest and best collection of Peaches, correctly named, grown by one individual, three of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

PLUMS.

For the largest and best collection of Plums, correctly named, from any State or Society, three of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

For the largest and best collection of Plums, correctly named, grown by one individual, three specimens of each variety, 1st Premium, the Society's Silver Medal and Fifty Dollars. 2nd Premium, the Society's Bronze Medal and Twenty-five Dollars.

SEEDLING FRUITS.

For the best collection of seedling Apples, grown by one individual, Premium, the Society's Silver Medal.

For the best collection of seedling Pears, grown by one individual, Premium, the Society's Silver Medal.

For the best collection of seedling hardy Native Grapes, either from native seeds or hybrids, grown by one individual, Premium, the Society's Silver Medal.

For the best collection of seedling Plums, grown by one individual, Premium, the Society's Silver Medal.

For the best collection of seedling Peaches, grown by one individual, Premium, the Society's Silver Medal.

FIGS.

For the best collection of fresh Figs grown in open air, Premium, the Society's Silver Medal.

For the best exhibition of Dried Figs, grown and cured in the United States, Premium, the Society's Silver Medal.

ORANGES.

For the best collection of Oranges grown in open air, Premium, the Society's Silver Medal.

LEMONS.

For the best collection of Lemons grown in open air, Premium, the Society's Silver Medal.

RAISINS.

For the best exhibition of, grown and cured in the United States, Premium, the Society's Silver Medal.

DRIED FRUITS.

For the largest and best collection of, with full description and expense of process, Premium, the Society's Silver Medal.

CANNED FRUITS.

For the largest and best collection of, giving full description of process and expenses, Premium, the Society's Silver Medal.

Premiums are subject to the general rule of restriction, that where objects are not worthy, prizes will be withheld. No State, Society, or individual can compete for more than one premium with the same variety or varieties of fruits.

PROGRAMME OF BUSINESS.

HOURS OF MEETING.

Wednesday, 10 o'clock in the morning, and 3 o'clock in the afternoon.

Thursday, 9 o'clock in the morning, and 3 o'clock in the afternoon.

Friday, 10 o'clock in the morning, and 3 o'clock in the afternoon.

Rules for Speaking.—Five minutes, and no person to speak more than twice on the same subject without leave.

Wednesday, 10 A. M. Introductory Exercises; Appointment of Committees, viz.: on Credentials, on Nomination of Officers, on Record of Fruits Exhibited, on Awards of Premiums.

3 P. M. President's Address; Reports of Committee on Credentials, and on Nomination of Officers; Election of Officers; Reception of Treasurer's Report; Discussion in regard to place of holding next meeting; also, in regard to what measures the Society will take to participate in the International Exhibition of 1876, in Philadelphia; and in reference to the policy of awarding premiums by this Society.

Thursday, 9 A. M. Reports of Standing Committees; Discussion of the value of fruits enumerated in the Catalogue, as indicated by stars, to be called by the Secretary, in alphabetical order, as follows: Apples, Pears, Grapes, etc., etc. At the close of each division, statements relative to new varieties will be received.

Friday, 10 A. M. Reports of Committees on Fruits Exhibited, and on Premiums; Reception of Essays; Completion of discussion on values of fruits, as per catalogue, and introduction of names of new varieties.

3 P. M. Resolutions, etc.; Adjournment.

ESSAYS.

The following persons were appointed at the last meeting to prepare Essays, as follows, viz.:

Hon. W. C. Flagg, Illinois, on Diseased Apple Trees, and their Cause.

Wm. Saunders, Esq., District Columbia, on Theory and Practice of Pruning.

Thomas Meehan, Esq., Pennsylvania, on Fungi on Fruit, and Fruit Diseases, as Cause, Result, or Concomitants of one another.

P. J. Berckmans, Esq., Georgia, on Cause, Remedy, or Preventative of Pear Blight.

In addition to the above, the following named gentlemen have been invited, and are expected to prepare short, condensed practical essays, or papers, as follows:

Prof. Louis Agassiz, of Harvard University, Massachusetts, on the Geological Age of Fruit-Bearing Plants.

Dr. John Strentzel, California, on the Cultivation of the Fig in the United States.

Dr. E. S. Hull, Illinois, on Root Pruning, and how to grow the fairest fruit.

Mark Miller, Esq., Iowa, on Fruit Growing, and Varieties in Iowa and other Western States.

Geo. W. Campbell, Esq., Ohio, on Grapes, Culture, Varieties, etc.

C. M. Hovey, Esq., Massachusetts, on Pear Culture.

P. Barry, Esq., New York, on How to Grow and Keep Pear Trees in vigor and shape.

Robert Manning, Esq., Massachusetts. Is there a permanent decline in the Apple Tree and its Crop in New England?

P. T. Quinn, Esq., New Jersey, on the Exhaustion of Fruit Trees, and the remedy therefor.

Josiah Hoopes, Esq., Pennsylvania, on the Influence of the Stock on the Graft, or of the Graft on the Stock.

A. S. Fuller, Esq., New Jersey, on Culture and Varieties of Small Fruits.

Wm. Parry, Esq., New Jersey, on the Cultivation and Varieties of the Apricot and Plum.

W. C. Barry, Esq, New York, on the Keeping and Ripening of the Apple, Pear, and Grape.

F. R. Elliott, Esq, Ohio, on the Cherry.

THE BOSTON RHODODENDRON SHOW.

BOSTON, *June* 11.—It has often been remarked that there is always one thing specially worth seeing in Boston—sometimes a dozen such—but always one, of some sort or other, and varying from month to month and year to year. Just now the thing to be seen is the flower show on the common, which is not only a very lovely sight in itself, but the first, best and only exhibition of the sort that has ever been seen in New England. It is shown under a huge tent about midway of the common, but nearer Fremont and Beacon street, and occupies something more

than half an acre of ground, the tent being 300 feet long by 80 wide. This ground, a few weeks ago, was an unsightly hollow, upon which the muddy ice of the long winter had been carted, and, melting away, had left a sort of dirty slough. The Massachusetts Horticultural Society put its workmen there, under the direction of a landscape gardener, and backed by Mr. Hollis Hunnewell with his millions—expended $10,000 in making knolls, lawns and paths in miniature, and in transplanting from Mr. Hunnewell's grounds at Needham, some hundreds of his magnificent rhododendrons and azaleas—and the result is worthy of fairy land. As you enter the tent from the Park street end, the west end being closed, you walk through a short avenue of tree ferns, palms and other tropical and Australian plants, down a sloping path which presently branches on either side, and is bordered with gorgeous azaleas in full bloom and of a dozen shades of color. Directly in front of you, in the centre of the tent, is an oval mass of rhododendrons, perhaps covering 30 square rods, and rising from all sides toward the middle. The path runs around this, ascending as you approach the farther end of the tent, and bordered on the opposite sides of the tent with a well turfed strip, interspersed with single plants of the rhododendron family. At the height of land in the extreme end of the tent, is another plat or turf also dotted with single plants and clumps and with seats beyond, commanding a view of the whole scene, as you look back toward the point of entrance. Seats are scattered here and there throughout the enclosure, and near the middle on one side is a band of music behind a screen of shrubbery, which plays in the evening to the promenading crowd.

At first but a small portion of the great mass of rhododendrons in the middle were in flower, but every day adds to the accumulation of color, while the rich, glossy leaf is everywhere in sight, and is only partially concealed by the full splendor of the flowers. An azalea in complete blossom is one mass of bloom, but the rhododendron has much more green to show, notwithstanding the greater size of its flower clusters. Then the azalea, with all its beauty, is comparatively a common plant; it grows wild in our woods and swamps, and of late years has been much cultivated in greenhouses and gardens, while the rhododendron is still unknown to half our people. Probably not one in a hundred of those who visit this show ever saw in their lives so many plants of this family as are here collected. Like the azalea, it was originally an American plant, but the European gardeners, particularly those of Holland, have been breeding the wild originals into a thousand varieties of size and color, scarcely any of which are known in this country, outside of a few gardens. The largest as well as the choicest collection of rhododendrons in the United States is that of Mr. Hunnewell, on his great estate at Wellesley, from which these plants are taken; and one great object of the show is to give our people ocular evidence of the surprising beauty and richness of this class of plants, and to convince them of the ease with which they may be cultivated. They require protection from the severity of our winters, and shade from the heat of summer sunshine, but bearing this in mind they are said to be as manageable as most garden plants. They ought to be taken into the cellar in winter, like fig trees, and, when set out, must be planted in the shade; but even without these precautions they can be kept alive, and with proper care, as Mr. E. S. Rand says in his book about them, "they can be grown as easily as lilacs, and bloom as freely; they are attractive at all seasons; in flower they are magnificent, in foliage they excel any evergreen."

This show is the finest exhibition of art now open in Boston, and the art which made it possible is a very high and beautiful one. Mr. Hunnewell may be called an artist in flowers, as well as a patron of art; he knows his plants thoroughly and individually, and gives them a great deal of his personal attention. He is a Boston millionaire, with his home in the suburbs, and has certainly found a wise use to which he may devote his surplus income. His rhododendrons on the common are all set out in the artificial soil constructed for them by the horticultural society; the azaleas and smaller plants are generally in pots sunk almost out of sight in the soil. This is the English manner of exhibiting flowers, and Boston takes to itself some credit for having so good an imitation of a good English fashion. The Advertiser calls it "a perfect photograph of a flower show, such as may be seen at Regent's Park or South Kensington." But if anybody imagines himself in London for the moment, the Boston east wind will undeceive him when he comes out of the tent. It has been unwontedly cold and easterly here for some days, indeed almost ever since June came in.—*Correspondent of a Daily Paper.*

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

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HINTS FOR AUGUST.

FLOWER GARDEN AND PLEASURE GROUND.

Some time since the writer found himself in a company comprised in part of men of great wealth, and the other were men of great prominence in science and letters. "Who is the gentleman you were speaking with?" enquired one of the money kings, and referring to one of the most distinguished men of the company. He was informed that it was Dr. ———, well known as a popular leader and editor of one of the most powerful papers of the day. Our wealthy friend seemed incredulous. "It must be the same," he at length remarked, half addressing himself; "and yet he used to pull teeth for me in his father's office when he was a young man." There is always a surprise, and with right minded people, a pleasant one, to know that an old friend or acquaintance has been successful in life—to find one who, as the world goes, is but one of a crowd, performing his duty in that position faithfully and well, advance to the front, and becomes of use to thousands of others in a way he never could in his old station. Yet it always takes time to reconcile us to the change. We knew what he once was. We know our own weaknesses, and that we should not in all probability have deserved such success, and it is natural to suspect that others could not have fairly obtained what it could not be ours to do. We find this true of our plant acquaintances, as well as of those of flesh and blood. We knew *Coleus Blumei* of old, and that he was nothing particular to brag of; and when we heard that he had branched out into myriads of gay colors, and had become a great favorite with England's aristocracy, we shook our heads, and declared our belief that they were making a great fuss over an additional spot or so. But it proved more. We democrats of America, as well as European aristocracy, had to bow down to the merits of our humble old friend, and to-day the improved Coleus stands as high as any favored flower with us.

Then there came a time when we were told that the English had taken the Beet into their floral affection, and that it had risen to the front rank in floral decoration. "Impossible," said we. "What, the old garden Beet, whose leaves we had thousands of times twisted off in the truck patch, and which was never known to be of any use but to ignobly serve in the cook's department!" But our surprise again had to give way. The old garden Beet had really become a prince in the flower garden, even putting some of its companions—richer in flowers—to considerable shame.

Now all this, good reader, is preliminary to introducing to your attention another old acquaintance, which has marked virtues which fits it for a much higher position than that which it now occupies. We refer to the common garden *Chamomile*. You know we here in the East had a terribly dry time this season. Grass dried up; white clover was nowhere, and it was very hard indeed to find any low creeping thing that was right green. But a row of chamomile under the writer's observation, kept its beautiful verdure bright through to the day of the fresh rain, as pure as on its first advent in spring. Then it lies so flat on the ground, and makes no attempt to throw up anything until

after mid-summer, when the flower stems could be easily cut away, and thus keep it green, that we really do not see why we could not make excellent use of it in a decorative way. There are many old fashioned things that we could thus make use of, and we would suggest here to our friends to look through their old borders at this time of the year, and see what can be done in this way.

We have learned to protect ourselves from cold wintry winds, but the art of making a place cool in summer is yet in its infancy. There is nothing accomplishes this better than *plenty of grass*, and the neat deciduous tree foliage. The making of flower beds with box edgings and gravel walks suits Dutch and French gardening, but it is too hot for us.

The beds should be cut in grass. The walks round about a place should also be in grass as much as possible; only those likely to be frequently used should be gravel walks. Even these, where tan can be obtained, are much cooler when this material can be used, than when gravelled. In the planting of roads, art, as we read it in the books, plants only in corners, and makes its most striking effects to be seen from the drives; but American art as it should be, plants all the chief drives with deciduous shade trees, and yet allows you to look through beneath them to the beauties beyond.

The best kinds of deciduous trees for this purpose are the Silver, Sugar, Sycamore and Norway Maples; American, (and where the borer is not troublesome) the English Linden; American and European Ash, Horse Chestnut, Magnolia tripetela and acuminata, with its first cousin the Tulip tree; the sweet Gums, Elms, Kentucky Coffee and Oaks of all kinds. For farm roads the Cherry, Black, English and White Walnuts, Chestnuts, and even the Pear may be employed. Besides these in the South there are the Mimosa, the Melia Zederack, Magnolia grandiflora which, though an evergreen, has the lightness of a deciduous tree; besides Live Oaks, &c.

But besides the selection of trees for drives, weeping trees should be liberally introduced, some of which, like Weeping ashes, make cool and shady arbors preferable to any the carpenter's hand could make. Of these are the large varieties of Weeping Willow, Weeping Sophora, Weeping Birch, Lindens, Elms, &c., though none equal the Ash for arbor purposes.

Then again very much may be done by planting two or three trees together so that as they grow up, they will form natural seat backs. For this purpose there is nothing like the Oak tribe.

Sometimes we cannot get the coveted shade because we have planted slow growing trees—generally the prettiest and best worth waiting for—this may be effected by planting liberally of Alders, Poplars and similar ephemeral trees, to be cut away as they gradually interfere with the permanent kinds.

The planting season will soon come around, and now is the time to look about and select the desirable kinds, and to decide on the proper places to set them.

The latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evaporation—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cool autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the operation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue, which in September and October is very likely, one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered, the loose soil should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

As soon in the fall as bulbs can be obtained, they should be planted—though this will not generally be the case till October; but it is as well to bear in mind that the earlier they are planted, the finer they will flower.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases. Now that, in

turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.

FRUIT GARDEN.

August and September are favorite months to plant out Strawberries, with those who desire a crop of fruit the next season. In making a strawberry-bed a warm, dry spot of ground should be chosen, with, if possible, a good loamy or clayey subsoil. A moist wet situation is very unfavorable. It is best to subsoil at least eighteen inches deep, and if the soil is poor, let it be moderately enriched with well decayed stable manure. In setting out, take care that the plants do not become dry from the time they are taken up till they are replanted, and see that they do not wither afterwards. Many persons cut off the leaves, if they are afraid of their wilting under hot suns, but a much better plan is to shade. Inverted 4-inch flower-pots are excellent for this purpose; they may be taken off at night. The dews will so invigorate them, that the shade will only be required for a few days. Sometimes in September they may need a good watering; but this should never be attempted unless a through saturation of the bed be given; and in a few days after, the hoe and rake should be employed to loosen and level the surface, which the heavy watering will, in all probability, have caused to bake and become very crusty.

Strawberries are best grown in beds about four feet wide for the convenience in gathering fruit, and giving them the best of cultivation. About three rows in a bed, and the plants twelve inches apart in the row, will be a good arrangement.

Many kinds of fruit trees that have arrived at a bearing age, may perhaps be growing very vigorously and producing very little or no fruit. Those who have read our remarks in past numbers, will understand that whatever checks the wood producing principle, tends to throw the plant into a bearing state. For this purpose, summer pruning is often employed, which, by checking the most vigorous shoots, weakens the whole plant, and throws it in a fruitful condition. The same result is obtained by root pruning, with this difference, that by the last operation the whole of the branches are proportionately checked, while by pinching only the strong growing shoots, the weak ones gain at the expense of the stronger ones. Presuming that the branches have been brought into a satisfactory condition in this respect, root pruning may now be this month resorted to. We cannot say exactly how far from the trunk the roots may be operated on, so much depends on the age and vigor of the tree. In a luxuriant, healthy tree, one-fourth may be safely dispensed with. In a four year old standard pear tree, for instance, the roots will, perhaps, have reached four feet from the trunk on every side. A circle six feet in diameter may then be cut around the stem, extending two feet beneath the surface. It is not necessary to dig out the soil to accomplish the result; a strong post spade, or strong spade of any kind, may be driven down vigorously describing the circle, and doing the work very effectually. Of all trees, the peach is as much benefitted by root pruning as any.

The Grape vine at this season will require attention, to see that the leaves are all retained healthy till thoroughly ripened. It is not a sign of healthiness for a vine to grow late; on the contrary, such late growth generally gets killed in the winter—but the leaves should all stay on, to insure the greatest health of the vine, until the frost comes, when they should all be so mature as to fall together. Frequent heavy syringings are amongst the best ways to keep off insects from out-door grapes, and so protect the foliage from their ravages.

A little trimming is useful to most trees at this season. The Blackberry and Raspberry may have their tops shortened so as to leave the canes about four feet. Some do this earlier in the season, but the buds are apt to burst if done too soon. In like manner, pear and apple trees that grow well, but produce no fruit, are benefitted by having, say half of some of the young growth cut back. The buds then left are very likely to form flower buds, in place of growth buds for next season. Many take out the old shoots of raspberry and blackberry after they have done bearing, and we have in times past recommended it ourselves; but on further observation, we see very little good, if not positive injury. The partial shade the old stems make, seems rather beneficial than otherwise under our hot suns. Frequently the sun shining on the hot ground, seems particularly favorable to fungoid developement. The lower leaves then fall before the wood is ripe, when it dies in the winter, and is *not hardy*.

VEGETABLE GARDEN.

Towards the end of the month, a sowing of Spinach may be made in rich soil, which will come in use before winter. That desired for winter and early spring use, is usually sown in September in this region. A few Turnips may be also sown for an early crop, but will be hot and stringy unless the soil is very rich.

As fast as endive is desired for salad, it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when pots or boards are employed. In cold or mountainous regions, Melons are hastened in the ripening process and improved in flavor by a piece of tile being placed under the fruit.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends in a slight degree, to weaken the growth of the plants. Take care also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

At this season of the year, more than perhaps at any other, it is important to hoe and rake between the rows of growing crops. A loose surface soil not only admits the various gases that the roots luxuriate in, but it also prevents evaporation and checks a too great absorbtion of heat, and then, besides all this, the weeds are kept down, and neatness and order reigns. After every heavy shower, if the time can at all be spared, the hoe and the rake should be freely employed.

COMMUNICATIONS.

RECOLLECTIONS OF AUSTRALIA.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

Certainly no potentate's couch, surrounded with all the skill and mystery of the upholsterer's art, was equal to mine; so beautifully draped and curtained was my forest bed, with climbing plants, vines and creepers, of multifarious habits, foliage and flowers. Such a bed, and such a spot, would have been all the novelist could desire for his heroine to repose on, when driven from home by a cruel and unrelenting paterfamilias And it answered every desired purpose for me too, an unromantic traveler.

In a grove of Fliudersia australis, Banksias, of several kinds, Acacias, Driandrias, Melaleucas, Grevellias, and the beautiful foliaged evergreen, Stenocarpus Cunninghamii, all beautiful, the latter especially so, among the many *rare*, *choice*, *good* and *uncommon* stove and greenhouse plants in the valuable collection of C. S. Sargent, Esq, of Brookline, near Boston, may be seen a handsome specimen. From the upper branches of the above named evergreens, hung the singular climber, Cassytha cuscutiformis, or scrub vine. It is a curious semi-parasite, which tenaciously fastens upon the trunks and branches of whatever trees are within its reach, and where ever it touches, throws out rootlets, which penetrate the bark and draw their nutriment therefrom. As a vine or climber, this vegetable vampire bears no resemblance to any other in the vegetable kingdom. Its general form and appearance may be compared to thousands of long green wires dangling in the wind. It is entirely destitute of leaves and produces little white flowers, which protrude from the scales, which closely cover the stem. It is exceedingly hard and heavy, and about as tough as telegraph wire.

In heavy and rich masses, grew the handsome Ripogonum album, an evergreen climber of the smilax family, while among its glossy green foliage, beautiful white florets were plentifully scattered, like tiny rosettes in a garland. Its average growth is from six to eight feet high. I have not met with it in this country, which is rather surprising, as it is worthy of cultivation, and would be a decided acquisition to the florist for decorative purposes. It would help to vary the very popular Myrisiphyllum asparagoides, whose elegant and graceful streamers wave to the harmony of motion with the form of many a beautiful maiden, whose charms are still more fascinating when smilax lends its aid. It is like getting a glimpse of *heaven's own* when we see lovely woman, the type of an angel, with a wreath or tire of smilax upon her snowy brow. Gentle reader, pardon my divergent rambling. It seems so natural to associate God's best gift to man with the other beautiful flowers which adorn the world we live in.

"And bid me not from memory's land,
Cull fair flowers of rich perfume,"

so we will gather as we go along.

It is presumed that we are not pressed by Time, although he is said to wait for no man; so let us linger beneath the old gum tree, and observe how the stags horn fern, Platycerium grande clings to the trunk of the mighty colossus, whose ponderous bulk, silent and solemn as the Sphinx, towers up like a vegetable monument, hundreds of feet high in the solitary wilderness.

In close companionship with this very peculiar fern, is an Orchid, Dendrobium minutum, a pretty little variety, bearing white flowers; and yet another, more curious still, D. pugioniform with its dagger-shaped leaves and beautiful yellow flowers. As most of the *Monthly's* readers are aware, the Nat-Ord. Orchideæ is considered the most curious, beautiful and fragrant of all "Flora's" offerings, and are much admired by all her votaries. Every day's experience convinces us that as they are becoming more generally known, they are consequently better understood and appreciated. At present they are attracting much attention from a deserving public, who need only to see them to admire. Thanks to Mr. Taplin, whose interesting communications graces the *Monthly's* pages at intervals, for bringing them into notice. In the cultivation and management of Orchids, there is *some skill* required, no doubt, but none of the *mystery* with which they were formerly surrounded, and as Mr. T. alleges, any one may grow some of them if they have a common greenhouse. However, I will not anticipate our good friend with any remarks about their culture, as he is fully able and willing to instruct all who desire to learn, and so plain are his directions, that "he who runs may read."

I trust the time is not far distant when we shall hear the gentle women discussing the beauty and merits of their Calandenias, Maxillarias, Noettias, Gongoras, Cymbidiums, Epidendrums, Cattleyas, Dendrobiums, Zygopetalums, Gastrodeas, Vandas, Aerides, Ansectochelus, Lælias, Phalœnopsis, Oncidiums, Stanhopeas, &c., with all the zeal and enthusiasm becoming the *fair* ones. But what *awful* names, says Mrs. B. Orchis; do you think I shall ever remember them? Yes, good lady, just as well as the names of any of your true friends whom you love or esteem. So write an order for one hundred selected kinds to Mr. George Such, or John Cadness, while I return again to the readers, and portray a scene at the antipedes.

It was a bright Australian morning, with a clear and exhilarating atmosphere, which seemed to infuse us with new life, and with a bouyancy of feeling—a freshness of body and mind, which makes us feel young again. Although so fearfully hot at times, the beginning of day is generally cool and salubrious. The denizens of the forest are early astir, and with strange and discordant yells, shrieks, whoops, croaks and cries, usher in the new born day. Both the fauna and flora seemed to be influenced alike, to be cheery and blythe. What an enjoyment the traveler feels too, when his brow is fanned with the flower-laden zephyrs which float in the air. Here the naturalist and botanist especially may find a broad field and a long range to study their favorite sciences in. On every side are presented so many beautiful and interesting objects.

The dew-drops glitter and twinkle like lucid pearls, hanging pendant from foliage and flowers, and sparkle and flash like liquid diamonds, bending the green grass blades. O Nature! how sweet are thy charms when so lovingly seen in the rosy morning's first blushes. How delightful to explore the forest jungles—the rocky defiles and silent glens, and gaze upon new scenes in those primeval spots for the first visited or seen by civilized man, and from contemplating Nature, look up to Nature's God.

Looking downwards, we see the simple and tiny mosses and delicate tracery of fern life. How admirable! How beautiful are they! Looking upwards, behold the mighty old and hoary Eucalyptus—massive, sombre and grim, in their loneliness, and pause and marvel at their vast proportions,

"Flinging their shadows from on high,
For Time to count his ages by."

The untraveled reader can scarcely form an idea of the enormous pondrosity of trunk, and the altitudes they reach, unless he actually see them. Imagine a tree nearly five hundred feet high, and compare it with the loftiest you have around you, and the one will appear a pigmy and the other a giant.

Midway between Tambarora and a low mountain, called "Monkey Hill," on an extensive tract of forest land, and known to the miners by the classical name of "Sally's Flats," were some of the finest specimens of these wonderfully huge Eucalyptuses to be met with in Australia. Of

the most remarkable species, I will mention but a few, viz.: E. amygdalina, a very robust kind, with foliage like an almond. The loftiest trees I ever saw were of that kind. The next in size, E. diversicolor, with its various shades of foliage. E. globolus, or blue gum, is one of the most useful timber trees in the colony, and is generally used where strength is required. It is very desirable, and stands the drying effects of the sun and hot winds without warping. I have seen well seasoned English oak to curl and twist so far from the form it was shaped to, as to become entirely useless.

In Tassmania, I have seen some noble specimens on the summits of the highest hills, where snow is often seen. It is valued for its strength and durability. I have no doubt but what it would grow in the Southern States, and probably in Pennsylvania. It is of rapid growth, and would, if it succeeded, soon outstrip any other tree I know of in this hemisphere. Some few years ago I saw some thrifty trees growing in the neighborhood of San Francisco, and which were astonishing the Californians with the surprising growth they had made in so short a time. If they have so continued to flourish, they will soon be classed as "big trees," and in time become rivals to the famous Sequioas. With them I also saw a grove of the beautiful E. eugenoides, like an immense Eugenia bush, with E. myrtifolia, like a mammoth myrtle tree; E. saligna, willow like; E. pulchella, a beautiful and symmetrical kind; E. perfoliata, of curious foliage and handsomely shaped; E. pulverulenta, with its powdery leaves and glossy stems; E. albicaulis, a remarkable tree with clear white stems and branches, conspicuous among its fellows, and generally found throughout Australia.

E. sideroxylon, is miscalled the iron bark, instead of the iron wood tree. It is one of the hardest of the many hard kinds of New Holland. It is a very handsomely formed tree. E. marginata, or Jarrah tree, is very tenacious, hard and close grained, and has the character of never decaying. It is said to resist the action of fresh and salt water for an indefinite length of time, and to be proof against the attacks of insects and worms--probably on account of its adamantine nature. The list could readily be extended, and why they are not as yet cultivated in the Southern States is something remarkable. Even in such effete old countries as Spain, Italy and Portugal, they seem to know their value, and are planting them by the tens of thousands.

While alluding to the Eucalyptuses, I must not omit the E. obliqua, or stringy bark gum tree, which is a fine heavily timbered tree. The wood is useful for almost every desired purpose. The bark, also, to the squatter is valuable, large rolls of which are easily removed from the trunks of the growing trees, and when laid out in the sun, and pressed flat with heavy weights, soon dries, and retains its form. A few large slabs of bark are sufficient to cover in the roof and sides of the settler's cabin, and shelter him and his family when he first *makes a start* on his own account. Rude specimens of household furniture are made of the bark, as it is pliable, and easily formed into such simple articles as suffice to make comfortable the inmates of "home, sweet home."

Following the circuitous forest road, which winds among the hills, down to the hamlet of Sofala, to the river Truron, the banks of which were said to glitter with the precious metal, while its sluggish waters literally flowed over golden sands. We were then in the vicinity of the famous "Golden Point." Among elegant and graceful tree ferns, Alsophila australis, Zanthorrhœa hastata, X. bracteata, Cordyline cannæfolia, Zamia spiralis, Acacia pubescens, A. dealbata, and A. pulchella grouped and clustered together on the river banks. While admiring these singular, graceful, and interesting specimens, we fell in with a party on their way to the diggings, and whose further advance in that direction had suddenly ended, through a rather ludicrous incident.

Two heavily laden drays, drawn by sixteen oxen, and whose slow, but sure progress had thus far continued from Sydney, through every kind of country, rough and smooth, had at last finally halted in the bed of the Truron. The poor, thirsty, hard driven animals were severely suffering for the want of water, and on sighting the river, had rushed down its sloping bank, and plunging into the stream, had freely imbibed the coveted water. As it frequently happens with horses and cattle, when deprived of water in a hot and thirsty country like Australia, the drivers lose all control over them when approaching water, as they madly rush to it to quench their thirst, and in their greedy eagerness, literally burst with repletion. Such was the dilemma a worthy, honest and prosperous farmer, the husband of a happy wife, and the proud father of eleven sons and daughters was placed in, having *sold out* and loaded up for

the digging with a stock of provisions, solid and fluid, intending to open a tavern for the good of the mining population in the commonwealth of Diggerdom. The bloated carcasses of five oxen lay dead in the river bed. Decomposition soon begins after death in all hot countries, Australia especially. Finding it impossible to drag out the drays with the diminished team, they had unloaded most of the merchandise and carried it on to the bank. While so engaged, the other oxen had gone astray and could not be found. After a fruitless search for the cattle, they had returned to the scene of the disaster, feeling downcast and disheartened. Seating themselves among the stores, and not knowing what to do, they had given way to despair while brooding over their misfortunes. Finding their spirits were rapidly sinking. they had as a dernier resource, drawn the cork from a bottle labelled "Angels Whispers," (not whispers of hope, I ween) for the purpose of raising their fallen spirits, if not their fallen fortunes again. While "waiting for something to turn up," Micawber like, they had emptied bottle after bottle of the angelic fluid, until the case was finished, and then "Blissful Bitters" seemed to have followed suit, while "Nuggety Brandy," was giving aid and comfort to the bachanalian family, to whom we were unexpectedly introduced.

Not being able to get away with the stores, they had concluded to remain with them until consumed, as that seemed to be the only feasible way of disposing of them to advantage. With a box of red herrings, a barrel of ship biscuits. some pickles, and any amount of mysterious fluids, all seemed to be in clover, and were enjoying themselves satisfactorily. If earthly bliss and happiness were to be found in a liquid form, it was surely there on the banks of the Truron, and if such *celebrated brands* of cordials, wines and liquors, (*specially prepared* for mining the digger's stomach) were not capable of producing any and every desired effect, I doubt if any others could. The annexed list of pacificatory decoctions *ought* to convince any skeptic of their marvellous potency, viz.: "Digger's Comforts," "Heavenly Gin," "Jolly Grog," "Extract of Happiness," "Miner's Delight," "Golden Ambrosia," "Frolicsome Fluid," "Digger's Cordial," "Delight of Man—Rum," "Celestial Whiskey," "Blissful Brandy," "Stroke of Luck Gin," and "Digger's Devotion," with sham Champagne, and other wines of wonderful efficacy. Whether they finished the liquors or the liquors finished them, I am unable to say. With pity, I may truly say, I turned to leave them, while the old philosophical toper began in a maudlin way, to recite "Plato's advice," who asks, "why should man be vain, since bounteous heaven hath made him great?" I, too, wondered why, as I left him.

Surrounded on all sides, and with an ever changing landscape as we proceeded on over hills wooded to the summit, while others were bare and barren, long sweeps of undulating pasture lands, broken and rugged rock-lands, with the most enchanting glens and fall of lights and shadows, the very scenes that would delight either artist or horticulturist, and make them feel all the paradisical pleasures such Eden-like spots can give. Heavy masses of vines and climbing plants, gracefully festooned, were hanging from tree to tree. Marsdenia suaeiolens, and M. flavescens, the former, very sweet scented, often rambled to the tree tops and formed a living canopy above, prettily draped with dark green foliage and snow white flowers. Trees so completely covered have a weeping or drooping appearance. As a contrast to the sweet Marsdenias, near by grew Hibbertia volubilis, a rampant climber, remarkable alike for its beautiful pale yellow flowers, frequently measuring from two to three inches across, and emits a most fœtid odor. A number of handsome bushes of Gompholobium venulosum, a pretty purple flowering kind, and G. polymorphum, a beautiful yellow, were very attractive, and reminded me of the much prized specimens I had so lovingly tended in days gone by. These with Barronia serrulata, another favorite, and Calochilus paludosa, a curious terrestrial Orchid, and Burchardia umbellata, a showy and beautiful herbaceous plant, well covered with whitey green flowers, formed an irregular shaped, though pleasing group of flowers and shrubs seldom, if ever surpassed, under the cultivator's care. Standing in the foreground were some elegant specimens of ferns, Blechnum cartilagineum, averaging from eight to twelve feet high, with beds of the Davallia gibbosa, Pteris scaberula, Adiantum assimile, Aspidium unitum, Lomaria Pattersonia and Cheilanthus caudata, spread in wild abandon, beneath the umbrageous branches of numberless Sterculia diversifolia trees, models of arboreal beauty.

Wyagden hills lay before us, a wild and rocky range, over which the busy miners were toiling

like slaves, digging and delving for the auriferous treasures beneath. Leaving the diggings behind, I followed a clear rivulet, which flowed along a verdant valley, and led to the picturesque little village of Peel. After dining and resting at a cosy little inn, until the night breezes cooled the atmosphere, we started on our journey towards the Maquarrie river. All was calm and serene, and in the silence of night, Nature was hushed. The noisy parrots had ceased from troubling, and the shrieking cockatoos were at rest. Save now and again, the Dingo's growl, a wolfish looking animal, whose nocturnal wanderings disturbed the forest sleepers, all was still. About the close of the last century, Dampier describes them "as beasts like hungry wolves, lean like so many skeletons, and being nothing but skin and bones." He is indeed a vicious and "evil beast," the plague of the sheepfold, whose nightly forays among the flocks have to be guarded against. Neither are they safe by day, as the Dingo seems to be ever on the watch, ready to make a raid among them. I always felt belligerent whenever I saw one, and shot several, considering them as alien enemies to mutton and all mankind.

Passed most of the night in "a house not built with hands." My bedchamber was in the hollow of a stringy bark gum tree, and as I boarded myself, and my lodgings were free, slept soundly, without a fear of the grim ghost of the hotel keeper haunting me with a bill in the morning. Like a free ranger as I was, (there was no trespassing in so wide a domain) my course lay towards the Maquarrie, which was low enough to wade through. Having crossed the stream, I entered Bathurst, a town having some pretentions to beauty and business, on the main road to Sydney. Bathurst plains are noted for their rich grasses, where thousands of sheep were quietly grazing, and whose only value then was their wool. Passed through groves of Araucaria Cunninghamii, with an undergrowth of Leptospermum scoparium, or Australian Tea plant. An infusion of the leaves of this *bogus* Bohea, is not *very* disagreeable to drink, and has *some* of the color, and a *little* of the taste of "the cup that cheers."

From the summit of Mount Tamby, the highest mount in New South Wales, the view was pleasantly varied with every kind of landscape. Large tracts of grazing land, the silver streak of a winding stream, meandering through cultivated farms—the boundless forest, the impassable jungles, dreary scrub, and solitary wilderness, alternated with each other, in the vast scene before me, where

> "All are but parts of one stupendous whole,
> Whose body Nature is, and God the soul."

Gathered some fine specimens of the remarkable Pteris vespertiliensis, or bat-winged fern, which grew along the mountain path. Also Pattersonia longifolia, a beautiful blue flowering herbaceous plant, and Burtonia conferta, an elegant leguminous plant, literally covered with a rich profusion of violet colored flowers.

While resting beneath the shade of a finely proportioned Oxleya xanthoxyloma tree, of about two hundred feet high, observed quantities of Orthrosanthus multiflorus, a lovely herbaceous plant, well covered with a mass of pretty blue flowers. The settlers call it the Peep o' Day flower, from its habit of early expanding when "Aurora opes the gates of day."

Polypodium Billarderii scandens, an interesting creeping fern, flourished in the shady ravines which led towards the romantic swiss looking village of Hartley, some eighty miles from Sydney. In this sequestered spot, where 'the valley and the village church, and the cottage by the brook," invited me to tarry awhile and enjoy the hospitalities of the little inn, kept by a Mrs. Goodman. Her husband was a sergeant in the gold escort troop, and which had halted for the night on their way to Sydney. Mrs. Goodman was also a goodwoman, a good cook, a good housekeeper, and as like a good Samaritan as any good English woman could be. As the gallant Sergeant had met with no foeman worthy of his steel, on his way through the bush, he valiantly charged at the head of his trusty troopers, at the smoking flanks of a fat kangaroo, which soon fell before their trenchant blades. Although ostensibly a man of peace, I could not forget that I belonged to a fighting nation, which had produced a Marlborough, a Nelson, and a Wellington, so arming myself with a Sheffield blade, I eagerly joined in the fray. It was "war to the knife" *and fork* while it lasted, and which happily terminated without either killed or wounded on our side. So with the blessings of peace, and plenty of good eatables and drinkables, we forgot all the cares and concerns of life, and were soon after snugly ensconced in the easiest of bunks that ever invited weary mortals to recline and repose on, where we slumbered safe from war's alarms.

ANTHURIUM SCHURZERIANUM.

BY JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

This is one of the most showy hothouse plants ever introduced to cultivation, and also one of the easiest to grow. The proper treatment is to drain the pots or pans, as if it was for potting a Cattleya—that is, fill it two-thirds full of broken pots; the soil should consist of two parts fibre from Orchid peat, and one part live spagnum moss, with a liberal mixture of white sand. In turning the plant out of the old pot, pass a thin knife round to separate the roots from the sides, for they cling to the pot like Orchideæ roots, and are also very brittle, requiring care not to break them. Place some of the prepared soil over the drainage, remove any, or all the old soil if sour; raise the crown of the plant well above the pot, as if potting an Orchideæ; press the soil firm and finish off with a layer of live spagnum, chopped fine. This holds moisture, of which the plant requires abundance, both at the root and over foliage with syringe. Place the plants near the glass, in a temperature of 60° in winter, and from 70° to 90° in summer, and it will commence to flower when two years old, and improve yearly, both in size of plant and number of flowers.

They flower with us in four inch pots. As the plant increases in size, it is best to use shallow pots or frames, for the roots spread on the surface, rather than downwards. Besides its magnificent scarlet color, the flowers of this plant have the desirable quality of lasting in perfection from two to three months. One of our specimen plants here had thirty, and another about twenty flowers open at once for several weeks, so your readers who grow plants for exhibitions, can judge what a valuable plant it is for that purpose. There is usually some flowers on the plant all the year.

HOT WATER BOILERS.

BY THOS. OTTAWAY, MIDDLEBURY, O.

I see there is some little excitement on the heating question. It is impossible to give one principle for all, for some burn wood, some hard coal, and others who have to use soft coal; also coke and cinders. In my experience, I have used them all, at different places. I have used several sorts of boilers—the Saddle, Newtown, Cylinder, Hitchings' Conical, also his new Corrugated Saddle boiler; Weathered & Cherevoy's; Mines Tubular and pipe coils in variety!

But now I am come to the conclusion, by experience, my choice is those boilers where the fires lie against the water to heat by contact, and not by radiation. But always combine the two if you can, especially if you use hard coal or coke. With soft coal little is gained by radiation, for they will get covered with soot (except where the fire strikes direct) in six hours. For soft coal, I like Weathered & Cherevoy's, and Hitching's new Corrugated Saddle. For hard coal I should recommend Hitching's new Corrugated Boiler, but for a good, cheap boiler for hard or soft coal and wood, &c., Hitching's new Corrugated Saddle is the best I have used.

I have built three sets of small houses this summer for different parties; I used the Corrugated Saddle in each; they all work well and give good satisfaction. They have to burn soft coal and slack at that.

Mr. Editor, I guess I will tire your patience on boilers, so I won't say any more this time. If it is wished for, next time I will say a little on pipes and water circulation.

[The hot water subject is by no means exhausted.—ED.]

WESTERN TREES.

BY E. F., BLOOMINGTON, ILLS.

In the June number of *Gardener's Monthly*, I notice some useful advice to the Government, in which you state that on certain very reasonable conditions, Illinois would furnish thirty thousand evergreens. Thanks for compliment to our State. We could do it a dozen times over. Our friend Douglass grows them by the ten millions; also at the nurseries of F. K. Phoenix, near this city, there is in one lot over seventy acres of evergreens closely planted, mostly of shipping size, besides other smaller patches; and of seedlings, several acres—the latter under shade. Bryant & Ellsworth's, in northern part of the State, are also largely engaged in the production of evergreens, so if the Government will only take the hint and be liberal with its own citizens, and patronize home products, they can do a big business in evergreens, with the advantage of getting everything which has been proved adapted to the climate.

The West has also an enormous crop of apple and other fruit trees. During a recent visit to the Phoenix Nurseries above mentioned, the writer was shown one block of apple trees of one

hundred acres, another of seventy-five acres, averaging twenty thousand to the acre, this would figure up the modest number of three and a half millions. This I think is not bad for *one* of the nurseries of Illinois, and may serve to indicate to our Eastern friends the stupendous proportions which the nursery business has assumed in the West—Illinois in particular.

If the Government were liberal enough to give to every new coming settler enough trees to plant an orchard on his new home, the cost being trifling—from two to five cents a tree—I doubt whether they could do anything better calculated to encourage emigration and consequent building up of the great West. Such action would certainly deserve more grateful remembrance than the scramble for back pay and other emoluments of office and influence of which men with souls are guilty of.

NATURAL GRAFTING.

BY B., GLEN MILLS, PA

The assertion is made in the *Popular Science Monthly*, for March, 1873, that botanists know that stumps of pine and fir trees increase in diameter by forming new woody layers for years after the trees have been cut down. Dutrochet says that in 1836, a stock of *Pinus picea* was still living, and had formed fourteen thin layers of new wood, one in each year; one felled in 1743 was still alive, and had formed ninety-two new layers. Vegetable physiologists were no doubt incredulous in hearing such narrations, but Goeppert, of Breslau, undertook an investigation of the subject, and found a union of the roots of the fallen trees with the roots of living trees in the vicinity. The union of the roots was sometimes woody, sometimes only by the bark of the roots. So far as observed, the anastomosis, or natural grafting, is confined to coniferous trees, and to a few species only of them; chiefly the Silver Fir, the Spruce, and occasionally the Scotch Fir. In the London *Gardener's Chronicle*, August 31st, is an instance of this kind of anastomosis in the roots of a Larch. Some idea of how this is affected is given, attributing it to cell growth through the medullary rays. This spring I observed an apple tree in my orchard with limbs so crowding each other that I resolved to sacrifice one of them. I sawed it off where it was three inches in diameter, and tried to push it off, but found it impossible to do so. Removing the ladder so as to enable me to reach the place of resistance, I found that the dismembered branch was firmly united to a limb beneath it. With a hatchet I then cut it near the anastomis, and removed three feet, but the end of the branch still lives, and was clothed with blossoms, and is full of leaves, with some fruit. Shortly after I saw another apple tree but a few yards distant, which appeared to have limbs united in a similar manner. By means of a ladder, I examined, and found a case exactly similar to the former, except that the branches were of smaller size. I had never before seen or heard of such a case in apple trees, but I do not think it so difficult to account for as the condition of the coniferous trees. It is natural to suppose that the motion of the wind may occasion abrasion of the bark on the limbs of apple trees, and thus prepare them for this natural grafting; but in the case of roots under ground, such cause for union cannot operate. In both these instances it is worthy of remark that the trees were of the kind called American Pippin, or Grindstone.

WONDERFUL PRODUCTIONS.

BY CHRONICLER.

In January, 1835, "Hovey's Seedling Strawberry" was announced. Its virtues far surpassed its praise. It was quickly distributed all over the nation, and reigned queen of good strawberries for twenty-five years, when Wilson's Albany Seedling took its place.

In March, 1835, we learned of a new "Chinese corn." "A merchant of New York found a few grains in a tea box." Messrs. Thorburn, of New York, grew them in their gardens at Astoria; each seed grew a stalk six feet tall, with many branches, like a tree, and produced numerous ears upon each branch, and the plant occupied no more space than a naked stalk of common garden corn; the ears were sweet for green corn. Its fame lasted three years. We have not heard of it since, but it was sold for twenty-five cents per ear the first two years.

In 1836, the "Rohan Potato" was introduced. It was a large, soft, deep-eyed and yellow fleshed tuber, scarcely eatable. It first sold for twenty-five cents a tuber; came down to five dollars per bushel, and lastly for five dollars per barrel. It got out of repute in four years.

In 1837, a tall, purplish, curled Kale was introduced. The seeds sold for ten cents each, or ten seeds for one dollar. It was to grow five feet

high, with a head as broad as a large umbrella, and the stalk covered with small cabbage heads. Each plant was to serve a sheep all winter for food from its stalk, and the head would afford sufficient shelter; it was to occupy only the space of a late cabbage, it being a biennial. Lasted four years.

In 1837, the "Morris Multicaulis" came forth. It was to make all cultivators millionaires, and all our people were to be clothed in silks and satins. Old and young, rich and poor grew it; others got silk worms and fed them. The folly lasted four years.

In 1837, the "Lawton Blackberry" sounded loud, and met a strong opposition, but its superior virtues forced it into general culture, and is still a public favorite.

The "Ailanthus tree" made a tremendous noise about the same time. It was a very *saint*, and called the "tree of heaven." It is still in culture, to the disgust of all its owners.

About 1840, the "Paulownia imperialis tree" made a rustling sound, threatening to drive all other trees out of existence by its large, coarse, ugly leaves. It is now out of favor.

In 1835, the *Love Apple* (Tomato) was first put into general culture and use. It has proved to be a great blessing.

About 1838, the general budding of pear scions upon quince roots began—that has greatly promoted our pear culture.

About 1840, the general bedding out of tender exotic plants began—that has increased a taste for floriculture, and it is surprising now to see the vast number of choice species and improved varieties of ornamental plants now cultivated. The *Coleus*, *Achyranthus*, and all the *silver-leaved* class, are charming to mix among the flowering classes. There have not been many additions to the sweet smelling class; but the species and varieties are numerously grown to afford a pleasant perfume all over the flower gardens. Ornamental climbers have greatly increased, and are very charming.

EARLY OUT-DOOR FLOWERS.

Essay read before the Gardener's Improvement Society, Germantown.

BY J. M.

I have spent some time thinking over what I knew of horticulture, in order to select some suitable subject for to-night's essay, and have at last adopted the above named one as about the best at my disposal. I do not feel capable of doing justice to so good a subject, but as with others, I have tried, I can tell you something on it. At this time, May 18th, our woods are full of flowers. Many of our earliest sorts, such as Epigeas, Drabas, Saxifragias and Hepaticas are in their prime, or mostly over; but the flowers still come on other kinds, and so rapidly too, that we hardly miss those that gave us so much pleasure but a week or two ago.

The woods at the present time may be likened to life in a city, where the constant stream of fresh faces make us forget those we have seen, but yet occasionally one will appear so strikingly beautiful, or with some strongly marked characteristic, as to indelibly stamp the recollection on our mind. Up to the present time we have had nothing to impress us with any brilliancy or display in what we have met, but all have been mostly noted for their delicacy of hue and humble growth.

In the Hepatica, Anemone, Sanguinaria, Claytonia, Houstonia, Lycopsis and others, all now in flower, or over, we find a light hue predominating, calling from us admiration for their loveliness and modesty, rather than for any richness of color. This absence of brilliant hues in early native flowers is worthy of notice. In the hardy borders of cultivated flowers, many plants are now blooming, and many are about to bloom. The pink and the white Phlox procumbens are now about over, at least the white variety is, it being nearly a week always in advance of the pink one. This Phlox, as its name implies, is a creeping kind. It would be, I should think, a most capital thing for cut flower men to force in winter, as the flowers could probably be produced by Christmas. Among other border plants about now in bloom, is the Vinca herbacea, blue: Iberis sempervirens, white; Viola blanda, white; Viola cucculata, with many others very nearly open.

The most of what are called hardy border plants will be in bloom in June, and a better list could then be made out. We have next hardy trees and shrubs, and from them have quite a list to prepare from. The Red Maple is pretty both when in flower and when with branches full of scarlet seeds, as it now is. The Pyrus japonica is now most past its prime, and though regretting this, yet we have in the beautiful double dwarf Almond, the white and the pink, something to make us look less sadly on its decline. The English Bird Cherry, with its long racemes of white flowers, is beautiful, and we

may forgive it its sickening odor for the sake of its shining black, ornamental fruit in early fall. The Spiræa prunifolia and Syringias are now out, and the Spirea Reevesii, Weigelias, Philadelphias, and a host of other trees and shrubs are nearly ready to please us with their bloom.

The love of flowers seems a natural gift to all, and after the winter months, our early flowers are a source of much pleasure. Those who truly love them—who can watch their growth with interest, are better men than those who unintere-stedly pass them by. We should never deem the time lost spent in tending and watching them, but believing it a part of the Creator's designs to thus aid our happiness, we should think we hear him in the words of the Christain's song, saying to us, "It is I, be not afraid," for our encouragement.

EDITORIAL NOTES.

FOREIGN.

Age of Trees In the Botanic Garden of Dijon, there is a Poplar tree 470 years old. We suppose the same tree would not live half that age here. We believe none of the European trees will live here much over one hundred years. When the feebleness of age takes hold of a tree, it soon falls a prey to the elements. The magnificent Silver Fir, figured in the *Horticulturist* about fifteen years ago, not near one hundred years old, though one hundred feet high, is fast going backwards; and the old English Elms on the revolutionary battle ground of Germantown, not more than one hundred years old, are all decaying now—some of them are dead.

The Upas Tree. This tree exists in many collections of hothouse plants in Europe. The writer once had a plant under his management, and there was no more venom in its "exhalations" than in a Papaw tree, to which it was not very unlike. A traveler, Davidson, says of it:

"Such a tree certainly exists in Java, but the tales that are told of its poisoning the air for hundreds of yards round, so that birds dare not approach it, that vegetation is destroyed beneath its branches, and that man cannot come near it with impunity, are perfectly ridiculous. To prove their absurdity, a friend of mine climbed up a Upas tree, and passed two hours in its branches, where he took his lunch and smoked a cigar. The tree, however, does contain poison, and the natives extract the sap, with which they rub their spears and kriss blades; wounds inflicted with blades thus anointed are mortal. Such I believe to be the origin of the many fabulous stories that have passed from hand to hand, and from generation to generation, about the Upas tree of Java."

Freezing of Sap in the Winter. A remarkable paper has recently been contributed to a German magazine, by Prof. Mohr, showing not only that the sap does not freeze in trees and plants which live through hard winters, but also the *reason why it does not freeze.* He says that though it is true water as we generally see and understand it, freezes at 32°, it does not do so when its particles are finely divided. Tropical plants have large cells, and these are the ones in which the sap freezes; but in plants with very small cells in which the liquid particles are finely divided, there is no freezing of the liquids until after the structure has received injury of some sort. This is true he says of insects and insect pupæ. They never freeze; but cut one apart, soon after the humors solidify, and on thawing life flies. There is a translation of this paper in the May number of the *Popular Science Monthly*, to which we refer all those interested, to whom what we said on this subject during the past has not been wholly conclusive.

A Legend of the Horse Radish. We like to keep our readers well versed in all that is said about plants, but we may premise that "fifty or sixty years ago" the horse radish was tolerably "notorious" in many places besides London. The *Garden* says:

"What brought horse radish into greatest notoriety was the following circumstance: Between fifty and sixty years ago, in Gray's Inn Lane, was a vast mountain of years and years accumulated London cinder-dust, filth and garbage; yes, a real mountain of it; and amongst its vast and varied accumulations were immense plants of horse radish, growing right up through the whole, the produce probably of crowns cast from sculleries to the dust-bin. Here it found a favorable site; and as the mountain increased in size and height, so did the horse radish, with its great strength and spear-headed crown, continue to thrust itself through it. Enough at least did so to create astonishment in those days, and to bring the horse radish into prominent notice; for when this mountain of refuse was removed, the immense length and size of the horse radish roots were discovered.

"We had no horticultural journals in those days; but the *Times* and the few papers we had, prominently adverted to this wonderful horse radish, and related how and where it grew. It was, indeed, a real phenomenon, the leaves being as large and thick as those of a banana, while its roots were as large and long as scaffold poles. How many hundred weight a root of it weighed, it would be difficult to guess, yet one root, as large as a farm yard gate post was dug out and exhibited. The publicity thus given to the matter, and the extraordinary perfection the roots attained in so rich a pasture,

proved how simply horse radish can be grown, and induced everybody to cultivate it in earnest."

Blood-Leaved Peach in France. According to the *Garden:*

"We learn from the *Revue Horticole* that M. Paillet, nurseryman at Chatenay-les Sceaux (Seine), has lately received from America a singular variety of the Peach tree. It is described as being a vigorous grower, with large leaves of a deep purple color, with metallic reflections. The fruit is said to be of good size and quality. and, when ripe, of a uniform red color over the entire surface of the skin."

But we happen to know that M. Paillet's peach is not of "good size," or of "red color," but medium in size, and white. The fruit is good, however. The mistake is in the color chiefly.

The Home of the Phylloxera. It seems to have been concluded that America is the home of this pest, but we see by the *Garden* that this is to be contested. It says:

"M. Laliman, of Bordeaux, is about to submit to the Academie at Paris the results of his investigations into the origin of the Phylloxera, which, he is convinced, has not been, according to the received opinion, introduced by means of imported American vines. In a communication to a Portuguese journal, M. Laliman states that, as a wine-grower, all his hopes for the future rest on vines grafted on the American species—Vitis æstivalis, cordifolia, and vulaina, which he has found, are never attacked by the Phylloxera."

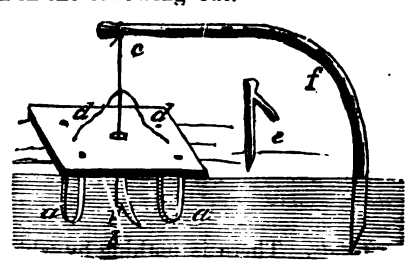
Keeping Grapes in Water. We have from time to time noticed that in France, grapes are kept far into the next season by cutting the bunches and putting the ends in small bottles of water, and then keeping them in places having a regular temperate atmosphere. In reference to this, Mr. Tillery, one of the most reliable of English grape growers, has the following note in the *Garden:*

"Much that is unsupported by fact is being written in some gardening periodicals about the keeping of late Grapes in bottles of water. The advocates of the system, who know anything about it, only contend that there are great advantages in cutting off the bunches of late Grapes, say in February or March, on purpose to get the vines pruned and properly dressed. I used at one time, year after year, to keep the bunches of Lady Downe's Seedling hanging on the vines until the beginning of May, when the flow of sap began to burst the berries, and the bunches were hidden by the young shoots. Now, since I have put the bunches in bottles of water, I can keep the same variety in good condition until the middle of June, and have certainly given the vines more strength, and done them more justice by doing so. It is said by some, why keep late grapes until that season, when early grapes can be ripened in April or May? Gently, ye doubters; look at the present price of coals for early forcing, and the price per pound that would have to be charged for these early forced grapes in the market in order to make their forcing profitable. I have heard from my friend, Mr. Thomson, that in his great vine-growing establishment on the banks of the Tweed. he will trust to his crops of late Grapes to bring the most "grist to his mill." Late Grapes carry better to the market than early forced ones, and they bring remunerating prices when the ruck of the Hamburghs and Muscats is over. By all means let Grapes hang on the vines when ripe in the summer and autumn, and even up to till February, should no bedding-plant exigencies stand in the way of their keeping; but after that date bottling the bunches will be found to answer best for the welfare of the vines. In the latter end of February this year, I cut two houses of late Grapes, consisting of the following varieties; Black Alicante, Barbarossa, Royal Vineyard, and Lady Downe's Seedling, and they will be consumed in the order in which they are placed. They were all bottled, and the bottles tied to the wires of one of the late houses, where the temperature could be properly regulated, and the roof shaded on sunny days. Late ripened Grapes had a very bad season to contend with in 1872, and they are not so well colored as usual, nor so good in their keeping properties, but yet I expect to have them in fair condition up till the end of May."

Raisin Making does not progress in the United States—why we do not know. It is said that there is not sugar enough in the native grape; but it was once said also of it in connection with wine making. Other countries seem to be successful. Some have been said to be well made in California, but only from the foreign grape. We suppose this is the kind referred to in the following from the *Grocer:*

"We have just seen a case of Raisins sent over here as a sample of what can be grown and cured by the Australian colonists. This small consignment, the first of its kind that ever reached England, arrived a few days ago from Adelaide. The fruit is of fair quality on stalk, though dark and rather small. It has a deal of bloom on it, not unlike that on Muscatels."

Mole Traps. We do not know but the old English mole trap is as good as any. This is given in the following cut.

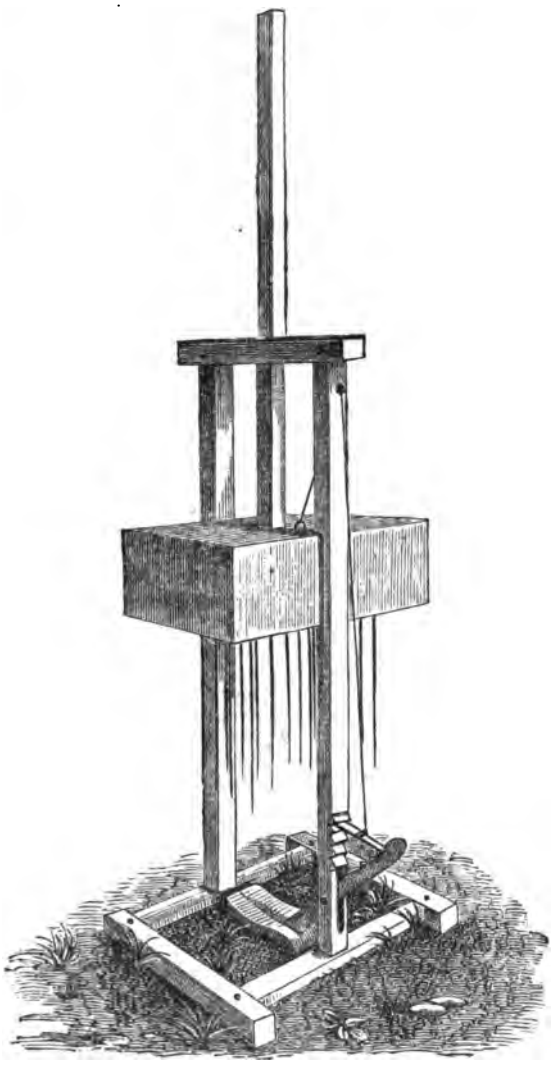


But people are not fond in these days of making their own traps. They prefer to buy them ready-made.

We have had in America for some years, a

trap which when set, has an iron jaw well set with sharp teeth, which when the mole goes through, its run is thrown by the loosening of a spring, and the mole is transfixed.

The Belgian mole trap, recently introduced, is much on the same principle. We give the following engraving, which explains itself.



Experiments. There is nothing by which the student in horticulture can learn more than in repeating the experiments made by others. The following is one easily made:

If a pan of water be placed within six inches of either side of the stem of a pumpkin or vegetable marrow, it will in the course of the night approach it, and will be found in the morning with one of the leaves on the water.

This experiment may be continued nightly until the plant begins to fruit. If a prop be placed within six inches of a young convolvulus, or scarlet runner, it will find it, although the prop may be shifted daily. If, after it has twined some distance up the prop, it be unwound, and twined in the opposite direction, it will return to its original position or die in the

attempt; yet, notwithstanding, if two of these plants grow near each other, and have no stake around which they can entwine, one of them will alter the direction of the spiral and they will twine around each other.

Duhamel placed some kidney beans in a cylinder of moist earth; after a short time they commenced to germinate, of course sending the plume upwards to the light, and the root down into the soil. After a few days the cylinder was turned one-fourth around, and again and again this was repeated, until an entire revolution of the cylinder was completed. The beans were then taken out of the earth, and it was found that both the plume and the radicle had bent to accommodate themselves to every revolution, and the one in its efforts to ascend perpendicularly, and the other to descend, they had formed a perfect spiral. But although the natural tendency of the roots is downward, if the soil beneath be dry, and any damp substance be above, the roots will ascend to reach it.

DOMESTIC.

A High Price for Horticultural Writing. Mr. F. R. Elliott, in *Cleveland Herald*, "is not a little amused" that writers should contribute to horticultural magazines without being specially paid for each article. As Mr. E. is getting considerable "back-pay" from the *Horticulturist*, and the "editors and publishers" of some other magazines, for some of his writings, his "amusement" at the bad luck of his brethren of the quill is very natural under the circumstances.

Hearth and Home Chromos. The *Strawberry Girl* and *Mischief Brewing*, are two of the most beautiful that have come to our table this year. Many "valuable gifts" of this character are but poor daubs.

Freezing of Insects in Winter. It seems our investigation as to whether the sap of plants will freeze is starting inquiry in all directions. A Peoria, Illinois, man found a wasp "frozen," and took the insect into the house and held it by the tail while he warmed his ears over a gas jet. You wouldn't believe it, says an eye witness, but the Peoria naturalist says its tail thawed out first, and while its head was so stiff and icy it couldn't wink, its "probe" worked with inconceivable rapidity, to the great distress of the minister who was present, who was dreadfully horrified by the hideous profanity consequent on each and every movement of the probe aforesaid.

Practical Horticultural Education. We are very much interested in the following notice which we find in a New York newspapers. We have no doubt our readers will thank us for republishing it here:

"OAKWOOD HORTICULTURAL SOCIETY.—A Student's Horticultural Society has been recently formed at Friend's Academy, Union Springs, at the organization of which twenty-four enrolled their names as members. The small entrance fee goes to the purchase of seeds, bulbs and plants. A leading object is ornamenting and polishing the grounds of the institution, of which there is an acre of lawn and trees immediately surrounding the buildings, with a two acre oak grove adjoining. The members of this Horticultural Society have already laid out and planted circular and elliptical flower-beds with bedding plants and the seeds of annuals, and have cleared up the grounds and given them a handsome finish. The advantages which they derive from the pleasant exercise and intellectual recreation thus afforded, as well as the practical knowledge gained in horticulture, and the cultivation of taste in laying out grounds, can be hardly overestimated. Not less important is its elevating tendency, when compared with the influence of the mere play exercise of schools generally. The members (many of whom belong to the class in Botany) have been favored at some of their meetings with discourses on practical gardening and the principles on which success depends, and on the evening of the 23d inst., an hour's lecture on vegetable anatomy was given by J. J. Thomas, one of the managers of the Academy illustrated with over fifty magnified pictures thrown by means of the sciopticon on a twelve-foot screen.

"We believe this is the first instance of the organization of a society of this character by the students of an institution of learning, and the example is well worthy of general imitation. Friend's Academy (which receives both young men and young ladies, under an admirable provision of good order) has been distinguished for its thoroughness in study and its scientific character; and now successful efforts are in progress to make everything as practicable as possible."

EDITORIAL.

THEORY AND PRACTICE OF TREE PLANTING.

From everything we see and read, it is clear that the great part played by evaporation in successful tree planting is not generally understood, yet on this one thing *alone* rests failure or success. It makes no difference whether it be winter or summer, there is always moisture escaping. In winter it is from the stems and branchlets, and in summer from these and from the leaves. All this continuous loss of moisture must be immediately made good by root action or the plant is lost; or the part of the plant which suffers most goes first. It is a popular notion that there is no evaporation in winter. This is a fatal mistake. There is not near as much as in summer, but still quite as much in proportion to the activity of the roots.

Now in transplanting trees, there is but *one* absolute cause of failure, and that is that the moisture escapes faster than the roots can supply it, and therefore in transplanting, everything we do should be for the encouragement of rapid root growth, or for the prevention of rapid evaporation, until the roots grow.

Of course there are incidental causes of failure If a tree be badly dug, and half the roots cut away that ought to be on it, it has a worse chance for its life than if properly dug. Or if the roots be allowed to dry, the smaller roots are injured, and only the thicker ones are left to carry on the water work. Still it all amounts to the one thing, which is the moisture dries out of the branches faster than the roots can supply it.

We know how this is in making cuttings, and it is equally true of a tree. We take a piece of stem without roots, but as we know it will wither, we put it in a damp greenhouse, or even cover it with a bell glass. If we did not it would dry up before the roots appeared. So in outdoor cuttings. If we take a large willow branch and plant it just as it comes from the tree, it will likely die. The sap is escaping from all the small branches, and there are no roots yet to make good the waste. We cannot put a bell glass over a large willow branch. If we could it would check the evaporation and perhaps there would be stronger and better roots for all this top. But not being able to do this we do the same thing in another way. We cut away all the small branches, leaving nothing but a stake or a post, and then it sprouts out like grass on a warm summer's day. Though it has no roots at all, yet such a willow stake grows better than a willow tree with all its roots, and the numerous twiggy branchlets left on

This is the lesson for the tree planter. A tree may, and often does, grow well without any pruning of its tops; but as there are always some injury to its roots, whereby they are prevented from immediately or fully supplying evaporation, a shortening is always beneficial; and this cutting back—sometimes to "bare poles," should always be proportionate to the apparent injury done to the roots, or according to the amount of cold, dry winter wind, or warm, hot spring weather that the plant is liable to en counter.

It will thus be seen that there is a greater risk in winter from fall planting, than in the spring season from planting at that time, if the trees happen to have large heads with numerous branches; but if this matter of evaporation be fully understood, and the tree pruned according to the season, there is no more risk at one season than at another.

This knowledge of the loss of plants by evaporation of their juices can be turned into great practical value in the management of young nursery stock for the winter. If set out in their final places in fall, they are pretty sure to have either the sap dried out of them, or be drawn out of the earth by the freezing and thawing of the ground. The best way is, therefore, to bury them wholly in earth on the ground, or in the earth that slopes well, so that no stagnant water can be about the roots. One of the best nurserymen we know, who plants out thousands on thousands of young trees every year, and rarely loses one in a million, gets all his young stock in the fall, covers it with earth in this way, and thus has it on hand to work at whatever day suits his purpose in spring. Trees of larger size are also pruned at planting, and we have heard him remark that in his opinion most nurseries which fail in America—and hundreds of new ones annually do fail—mostly from their failures

to get stock to grow, which need not be, provided they are properly handled.

We believe this firmly, and further that half the trees annually planted die, the majority of which might be saved if only this thought of evaporation of the moisture were uppermost in the minds of the planters. There is probably little new in this chapter to intelligent horticulturists; yet we believe it will be a benefit to thousands, if we are to judge by the losses we see.

WANDERING.

The Editor-in-Chief, Mr. Meehan, is taking a vacation in the far West. While we commend him to the readers who may meet with him, his Nursery and the *Monthly* go on as usual.

OBITUARY.

The *Boston Cultivator* has the following notice of the death of one of the most distinguished *horticulturists* of the past generation, as will be seen by his age. He had claim to rest from active labors for the good of horticulture before the appearance of the *Gardener's Monthly*, but he always took a warm interest in its success:

JOSEPH BRECK,

another venerable agriculturist and horticulturist, and an occasional contributor to the *Cultivator*, died on Saturday, aged 78 years, 11 months and 14 days, widely known as seedsman and senior of the well known agricultural warehouse of Breck & Son, of North Market street, Boston. The deceased was a native of Medfield; began business for himself in Pepperell and removed to Boston, where he continued in business down to the time of his death. He was publisher of the "Old New England Farmer," which he discontinued, selling his list of subscribers to the *Albany Cultivator;* author of "The Flower Garden, or Breck's Book of Flowers," the most popular hand-book ever published in this country, in 1851, re-issued in 1866 as "New Book of Flowers," re-written and published by Orange Judd & Co., New York; was member of the State Senate; one of the founders of, and always one of the most liberal contributors to the exhibitions of the Massachusetts Horticultural Society; was president for a time of the society, and a true Christian gentleman of the old school in the noblest and purest sense of that term. "He was a good man," and his memory will be cherished by all who knew him intimately, as we had known him for years. *Requiescat in pace.*

SCRAPS AND QUERIES.

CARTER'S CHAMPION SCARLET RUNNER.—A correspondent informs us that Messrs. Thorburn has tried this variety of bean in this climate, and that it did not appear different with them from the scarlet runner.

ODORS OF FLOWERS.—The Editor of the *Hygiene*, New York, asks us to submit the following to our readers:

In view of the recent discoveries of Prof. Mantegazza, of Pavia, Italy, concerning the production of *ozone* by certain plants and fruits, and the probable hygienic advantages to be derived from the cultivation of such plants, it is desired to obtain the experience of nurserymen and florists concerning the following points:

1. What is the popular opinion of the effect of odorous plants on health?

2. What plants are believed to affect the health favorably by their odors?

3. What plants are believed to exert injurious effects by their odors?

4. What diseases are believed to be affected by odorous plants, and how—favorably or unfavorably?

5. Have you noticed any exemption from such diseases as fever and ague, or other malarious diseases, by those engaged in floriculture?

6. Do you know any instances of the health of a neighborhood having been beneficially affected by the cultivation of flowers? If so, what diseases were modified or checked, and what were the flowers and plants to the cultivation of which the result was attributed?

Answers to the foregoing questions, and any other information touching the subject, may be

made as briefly or as elaborately as you choose —the object being to elicit such facts as exist, and the publication of which, it is believed, may do much towards increasing the cultivation of flowers for sanitary reasons, if for no other.

A copy of *Hygiene*, containing the result, will be mailed to those who contribute by their answers to this effort. Answers should be addressed to Editor of *Hygiene*.

FREEZING OF SAP IN WINTER.—Our correspondent, *L. J. Templin, of Kokomo, Ind., June* 16, says: "In the *Gardener's Monthly* for June, I see you have given a part of an article of mine, published in the *Rural New Yorker*. In your introductory note, you have somehow got my name metamorphosed into J. R. Temple, which is, as you are aware, wide of the mark. You seem unable to understand what I am 'driving at.' If my language was ambiguous or indefinite, it is my own fault that I am not understood. What I meant to say, and what I affirm, is that vegetables can, and do become 'frozen solid,' without injuring their vitality. You have succeeded in bringing the world to your views on several points, but on this question, I opine, you will find it a harder task to convince men than on any theory you have heretofore advanced. It would be, I think, about as easy to convince men that the surface of our lakes and rivers does not become 'frozen solid,' as that the sap in vegetable substances does not become so frozen without injury to their vitality. They have the evidences of the same senses—sight and touch—to the one that they have to the other."

[We understood our friend to say, just as he now says it, that vegetables can and do become frozen solid without injury to their vitality, and further than this, we understood him to attempt the proof of this affirmation by referring us to frozen turnips which became fatally injured by being frozen! We had nothing to say against his assertion, but merely doubted the value of the proof.]

DEGENERATION OF PANSIES.—*M. S., Paris, Ky.*, writes: "Some time when writing of Pansies, please let us know why it is they degenerate, and what we can do to prevent their degeneration. We have bought the best seed we can get every year, for some years past; and they bloom quite up to what the advertisements say about them, but before the season is half over they produce little bits of flowers not fit to be seen."

[There is no degeneracies in the variety. In the hands of the best growers, it is the same as with you. As the season advances, the flowers always get smaller; but seeds saved from these will give plants which will produce large flowers again next year. Indeed, the plants now flowering, if kept over the winter, as they often can be, will have just the same flowers, large and small, as they had this. All that is necessary is to give a dressing of new and good soil to them before they begin to grow next spring. The Pansy likes new and rich soil.]

WATKIN'S GLEN, N. Y.—Our readers will remember the account we gave of the wondrous beauty of this spot a few years ago, then but recently discovered. The place has since become a fashionable place of summer resort, and our old friend, Col. Frost, has had to transform his beautiful residence into a large hotel and boarding house, capable of accommodating several hundred boarders, under the management of one of the leading New York hotel keepers.

THE MYSTERIES OF THE POSTAL LAWS.—*Mr. Harding* says: "You will observe on the envelope which enclosed the last MSS. I sent you, the words 'book manuscript,' with two 2-cent stamps, and which ought to have carried through as heretofore. The Postmaster refused to mail it without the additional stamps required for letter postage. As addressed to the Editor of the *Gardener's Monthly*, it did not come under the caption of 'book manuscript,' as a monthly magazine 'is *only a part of a book*, and consequently not a whole one,' as the Postmaster understands it.

"I, like some of your other correspondents, wish I had a better understanding of the mysteries of the post office, which seem to a plain and simple body like the writer, inexplicable. Is there no Soloman now-a-days, with wisdom enough to solve the enigma? Perhaps Dr. Cumming could, as he professes to understand all about ancient visions, and so possibly would be able to interpret 'Uncle Samuel's.' Probably some spiritualist medium, or modern 'witch of Endor' can be induced to raise up the spirit of 'Beltshazzar,' master of the magicians, who would give 'the interpretation thereof,' to the letter writing public. Should such a ghost ever present its supernatural form within sight of the

writer, like Shakspeare's 'Horatio,' I would hail it as he did, 'by Heaven, I charge thee, speak.'"

[As our correspondent says such is the *ruling* of the Postmaster General, though every one knows such was not the *intention* of the law when passed. There can be no reason, under common sense, why a book should be favored with free, or nearly free, postage any more than the publisher of a magazine. Indeed it is no unusual thing for matter to be run through a magazine before it goes into a book form. But unfortunately, common sense is not English grammar, and if the Postmaster chooses to be governed by what the words of the act say, rather than by a common sense meaning, who can blame him? We have heard of an eminent man whose hand writing was none of the best, who finished up an editorial by the magnificent quotation that "virtue is its own reward," and who was horrified to find in print that he had written "washing with soap is absurd." Our postal laws have been made something after this fashion, and we shall not be at all surprised if the P. M. G. does not find somewhere in the code, a clause which warrants him in ordering that all editors shall be hanged.]

DOUBLE-FLOWERED PEACHES.—*M. S., Paris, Ky.*, asks: "Will double blossomed Peaches bear fruit? A friend of mine says some she purchased of an agent has fruit on. I tell her she has been imposed on, as I believe double flowers never seed or produce fruit."

[Very double flowers do not seed, but many things are not *quite* double. The pistils are often perfect, and only the anthers are deformed. Thus some double Roses, Carnations, Hollyhocks, and so forth seed. Double-flowered Peaches are of this class, and *sometimes* fruit.]

NAME OF PLANT.—*Mrs. F., Canandaigua, N. Y.*, writes: "I send you by mail to-day, a climbing plant, grown from seeds given me by a friend direct from Honolulu, Sandwich Islands. It has a tuberous root, and in some of the plants the tubers grow one below another on the same root stalk. My friend told me that the plant, when in blossom, was very beautiful, and that in the Islands it grew very luxuriantly, completely covering verandahs, and running over the roofs of buildings. It is called there the *Mexican Climber*, and my friend knew no other name for it. I take the liberty of sending one to you, thinking you may know something more definite respecting it. I planted the seed four years ago, and now have three plants remaining. Every year they make very fine foliage, but no flowers. Probably window culture is not suitable for it. The plant which I send you has been cut back, and is now making new growth. Give it support, and it will grow very rapidly. I shall be much pleased to learn anything which you may know relative to it, through the columns of the *Gardener's Monthly*."

[The plant is a species of *Cocculus*—what species can scarcely be told without flowers or fruit. It is not, however, very distinct from the *Cocculus Carolinus* of our Southern States, which is quite hardy so far north as Philadelphia. As our correspondent remarks, it is a beautiful climbing plant, and then the fruit adds a new charm to it in a profusion of red currant-like berries; but as the different sexes are on separate vines, the fruit is seldom seen. We have never seen the berries on the cultivated specimens as they are on wild plants, where both forms grow freely together in the woods.]

TRIMMING TREES.—*W. D., Westchester, Pa.*, says: "The skilful Scotch gardeners told of by 'Chronicler,' in the *Gardener's Monthly*, who came over to this country about seventy-five years since, and introduced the system of maiming, hacking, and eventually ruining our beautiful God-formed trees, had better have remained at home. Nature wants no such assistants. Their art is essentially false. Art is only worth calling such when it approaches Nature in its methods and spirit, and certainly there is no such revelation in Nature as these abominable tree-trimmers have sought to thrust upon us. May the worms devour them at last."

NEW AND RARE FRUITS.

BEURRE DUBUISSON PEAR.—Respecting this Pear, which attracted so much attention last season in Belgium, we read the following remarks in the *Bulletin d' Arboriculture:* "We consider the Beurre Dubuisson the most valuable acquisition of the present generation, as it equals the finest October Pears in quality, and is in perfect condition in February and March, a time when thoroughly melting fruits are not to be had. It has, moreover, another invaluable quality, viz., that of keeping ripe in a fruit-room, without suffering any change, for four months, commencing from the beginning of December." The following description of this Pear is given by M. Du Mortier, in the *Pomone Tournaisienne:* "Fruit very large, oblong, slightly indented, truncate, and ribbed at the base, somewhat attenuated towards the top. Stalk short, thick, oblique, not much sunk in the flesh. Skin yellow, dotted and spotted with russet, sometimes slightly colored on the side next the sun. Flesh fine grained, buttery, sweet, slightly aromatic, and very juicy. Quality unsurpassed." The Beurre Dubuisson is finely figured in the *Bulletin d'Arboriculture* for Sept, 1872, where its aspect in the colored plate fully supports all that has been written in its favor.—*The Garden.*

A NEW LATE PEACH.—Under the name of Peche Belle de Saint-Geslin, a new Peach is described, in the last number of the *Revue Horticole*, as the latest ripening kind known to French cultivators. The stock from which it sprung was discovered some years since growing amongst the ruins of the old tower of St. Geslin, near Richelieu (Indre-et-Loire). The discoverer (M. Joutron) finding that it fruited much later than any of the other kinds he possessed, continued to propagate it. The quality of the fruit is excellent, the flesh being very melting and sweet, with a slightly perfumed flavor. It is also of large size and handsome appearance. Its chief merit, however, is that it ripens as late as the beginning of November, somewhat later than the Salway Peach. The tree is described as a vigorous grower, with long stout branches covered with bark of a uniform blood-red color. Leaves long, oval-lance shaped, very finely toothed. Flowers like those of Grosse Mignonne.—*The Garden.*

NEW AND RARE PLANTS.

That splendid hardy shrub, Xanthoceras sorbifolia, which was named and described by M. Decaisne some years since, and of which only a single specimen exists in the gardens of the Museum at Paris, is now completely covered with flowers. These are of a pure white, slightly tinged with lilac-rose on the margin, and are produced in dense and effective clusters. Few flowering shrubs are finer than this, and, when better known, it cannot fail to become a general favorite.—*The Garden.*

NEW CLEMATISES.—Since the introductio- of the Japanese species, the improvement of the Clematis by hybridization has been very great. But the limit has not been reached. The *Gardener's Record* says of the recent exhibition in London:

"Some very beautiful neat types of spring-flowering Clematises were shown by Mr. Charles Noble, of Sunning Dale, and to one of them, C. Mrs. Villiers Hister, white, with dark stamens, and a bright lilac flame on each petal, distinct, but with star-shaped flowers, a first-class certificate was awarded. A curious circumstance occurred in connection with the granting of this certificate, as two of three of the judges, whose names were appended to the certificate as having awarded it, emphatically repudiated all knowledge of it, and further said that the flower certificated was the very one, if not the only one, they should have passed without notice. The other varieties were Charles Noble, violet mauve, darker on the edges, the young flowers when first expanded, have quite a reddish violet tint; this is a very fine broad-petalled variety; Madame Albani, pure mauve, a very beautiful flower, with splendid broad petals; and Madame

Torriani, pale ground, very charmingly and prettily tinted with pink, a very distinct variety."

DIEFFENBACHIA NOBILIS.—In a late number of the *Gardener's Chronicle*, we observe an excellent illustration of this beautiful plant, introduced, we believe, by Mr. W. Bull, King's Road, Chelsea, London. It is described as being one of the finest of its class, and very effective as a decorative plant. The leaf-stalks are about a foot long, thick and channelled, margined nearly up to the blade, very pale green, mottled transversely with brighter green. The blades are oblong ovate, sub-cordate, 20 inches long and 9 inches across, ending in a short abruptly acuminate point; they are of a deep rich green, marked over the central portion to within about an inch of the margin with largish angular, irregular, and variously confluent white spots, which contrast strongly with the color of the margin and intervening portions.

VIOLET "SENSATION."—Mr. Williams' new Violet "Sensation" is described in the columns of a cotemporary as being now in perfect bloom in the Victoria Nurseries, and also to be one of the finest things in its way that has yet been sent out. It is intermediate in character between a good violet of the Coronuta race and a blue Pansy, and has the early-blooming character of the Pansies.—*Gardener's Record.*

DOMESTIC INTELLIGENCE.

A MARYLAND VINEYARD.—In our August number we wrote at some length of the adaptability of the soil and climate of the South, and particularly of Maryland and Virginia, to the growing of grapes and the making of wine, and it is with great pleasure that we are now able to offer proof of the correctness of the position we there assumed as to a new and profitable opening being offered to land holders in the direction indicated, and to present an illustration of the success attainable in this branch of culture as shown by the operations of a vineyard near Baltimore.

Mr. Charles T. Schmidt, a German gentleman of intelligence and education, long resident in this country, and formerly the owner of a vineyard on the Hudson River, some twenty miles above the City of New York, desirous of living in a climate in which the winters were less rigorous, removed some years ago into Maryland; and having purchased a farm near Avalon, on the Baltimore and Ohio railroad, he planted upon it a vineyard which is now in full bearing, and each season being enlarged by additional plantings. There are now 21 acres, occupied by about 17,000 vines, and producing last year from 11,000 to 12,000 gallons of wine, which is put on the market in the purest form, with the addition of no foreign substance whatever, and which is fast making for itself a very excellent reputation.

Mr. S. grows a large variety of grapes, many of them, however, only in numbers sufficient for properly proving their merits for wine making, he relying mainly upon a few well tested kinds, such as the Concord, Ives' Seedling, Norton's Virginia, Hartford Prolific, Delaware and Iona. Besides these he grows for the production of a white wine the Perkins, a grape not very extensively known, and popularly not highly appreciated, but one which for the purpose named is here proved to be one of the best of American grapes. The wines produced from the first four and the last named varieties are made and preserved separately, while the Delaware and Iona, as well as the various Rogers' Hybrids, the Alvey, the Telegraph, &c., are used by mixtures in different proportions with other Grapes or with each other.

Whether it be from the peculiarly favorable situation as regards soil and exposure, or whether it come from greater care and more intelligent management of the vines than they ordinarily receive, we cannot tell; but the grapes in this vineyard certainly seemed to us the day we were in it to have attained a degree of perfection in size and flavor almost unequalled in our experience. The *Concords* were very large, rich and melting, and entirely free from the faintest suspicion of that foxiness which seems everywhere, notwithstanding the wide spread and deserved popularity of the grape, to be the

standing reproach cast upon this hardy, productive and useful variety. It may be due to some peculiarity of treatment or location that we are able to rank the Concord here grown as a decidedly superior grape for eating to the *Iona*, growing alongside of it under identically similar usage. The latter, though fair to view and suffering little from rot, gains nothing by a fair comparison. This, we know, is reversing the general judgment, and as it is a matter of taste, the opinion of others might not coincide with ours, even though they tested the two together as we did.

Of the other kinds largely grown here, *Alvey* is a black grape of medium size, of a sprightly vinous flavor and little or no pulp and few seeds. Ives is a fair table grape and very valuable for wine. The berry is juicy and sweet, but with considerable pulp and rather thick skin. *Hartford Prolific* has a large black berry with toughish skin, but sweet and rather juicy flesh with considerable pulp. *Norton's Virginia* grows in long loose bunches of medium size, the berries rather small but rich, juicy and sweet. This is one of the best of grapes in this locality for wine making. It is a black grape. *Telegraph*, (or Christine), is a juicy, sweet, delicious flavored grape, growing in medium, compact bunches. It is a desirable variety, worthy of much wider trial than has been given it. Of the Rogers' Hybrids, No. 4, (*Wilder*), is a large black grape of good flavor, somewhat pulpy, but tender; No. 19, (*Merrimack*), is also a large sweet and juicy black grape. Neither of these two, however, compare in quality to the No. 1, (*Goethe*), which is of a reddish amber color, of large size, growing in well filled, good sized bunches; sweet, juicy, *vinous;* flesh tender and melting, of delightful flavor—a delicious grape for the table and of merit for wine, though not yet thoroughly tested in this respect. The *Perkins* we did not see or taste; it being a comparatively early variety, the fruit had all been picked before our visit to the vineyard. It is a medium sized red grape, generally described as being inferior and almost valueless; but, as stated before, found by Mr. Schmidt to be one of the most useful and desirable of all the varieties grown by him. The *Catawba* and *Clinton* are not grown here, the former from its tendency to rot, and the latter having been superseded by more valuable kinds.

It is worthy of remark in passing, that little or no damage is sustained from any disease of the vines now in bearing in this vineyard.

Of the *Wines* produced from these grapes, that from the Concord approximates in comparison with European wines, nearest to a light Claret, those from the Ives and Norton's Virginia to a fuller bodied Burgundy, and the white wines from the Delaware and Iona, (mixed), and the Perkins, more nearly resemble the Rhine wines of Germany. To the average American taste, unused to the light and somewhat acid wines so largely produced in Europe, these native wines will not at first trial be found very attractive, their very purity and freedom from the "doctoring" and sweetening largely practiced with the foreign productions to artificially prepare them for our markets, giving them a novelty of flavor, which though not so much relished at first, speedily becomes, however, agreeable and attractive. It scarcely admits of a question, we think, that as these light and pure wines are introduced into popular use, and the masses of our people become accustomed to drinking them, that the consumption of whiskey will diminish in a degree proportioned to their use.

We can refer but briefly to the operation of wine making. The grapes as picked are brought from the vineyard in tubs and emptied into a mill which mashes and grinds them, its rollers being so arranged that the seeds are not broken. The crushed grapes and the juice pass from this mill by a spout through an aperture in the floor into the fermenting vats in an apartment below, a sieve in charge of a boy preventing the passage through of the stems. These vats are of the capacity of 800 or 900 gallons, and are arranged with two false heads which operate so as to prevent the rising to the surface of the fermenting must of the husks of the grapes. They are filled with the juice, pulp and skins of the grapes, and the process of fermentation at once begins, the carbonic acid which rises being by an ingenious but simple contrivance, allowed to escape without permitting the entrance of atmospheric air, which it is necessary to exclude during every process of the manufacture.

This first fermentation continues, for the white wines, for two or three days only, and for the red, from six to eight or twelve. In the making of white wines the fermented must is racked off without further fermentation upon the husks. With the red wines the husks are pressed by means of a suitable mill and the ex-

tracted juice added to the must already racked off from the vats.

The casks as filled from the vats are set aside and another fermentation, known as the quiet fermentation ensues, this continuing for four or five months, and in most cases recommencing the second summer. During this process a similar arrangement for the escape of carbonic acid and the exclusion of common air to the one alluded to above is used, consisting of an inverted U shaped tube, one arm of which enters the barrel through the bung, the end of the other arm being immersed in a small vessel of water arranged to receive it.

At or before the termination of the quiet fermentation the casks are removed to the cellar or vault, where they remain for about a year—at the end of which period the wines are ready for use. This cellar is built in the side of a hill, so that an even temperature is maintained. Its storage capacity is about 16,000 gallons.

Mr. Schimdt is now also making to a limited extent a grape brandy, which doubtless as a pure article will find a ready sale for medicinal purposes, displacing the villainous compounds imported, or professing to be, under that title.

We were particularly struck, in witnessing the operations of wine making, with the extreme cleanliness everywhere prevailing—a feature peculiarly cheering and gratifying in comparison with the statements made of the manner in which the same processes are managed in European vineyards. If the stories told of them are not the inventions of travelers, we will have the double satisfaction in drinking American wines of knowing that they are not only purer, but cleaner than the "vile drinks" from the "other side."

The vineyard of Mr. Schmidt is situated on the sides of a hill, declining in almost all directions except towards the West. He finds but slight difference of results from various exposures of the vines, preferring however, if any, the Northern inclination, although in his case a still higher hill somewhat shelters him from the wintry Northers. The land, which is a rather stiff loam intermixed with considerable gravel, was thoroughly subsoiled before the vines were planted, one of the Pittsburgh subsoil plows drawn by six mules having been used. The vines are planted at distances of about eight feet, in rows six feet apart, though some variation is made for different varieties. The vines are supported on trellises of wires running horizontally from posts about twenty feet apart. Ordinary iron wire is used, and very little trouble is experienced with it, the posts being well braced. Vines one year old are planted, and they come into their full bearing about the fourth year, when each vine will yield, according to the variety and the season, from ½ gallon to 2 gallons of wine. The variation in the weight of the different grapes required to make a gallon of wine is very considerable, the Alvey, for instance, making a gallon from 11 pounds of grapes, the the Concord from 14, whilst of the Ives from 16 to 18 pounds are required to the gallon.

In the vineyard clean cultivation is practiced. As soon as the crop is gathered the cultivators are put into the rows, while the spaces between the vines are hoed by hand. In the spring as soon as the ground opens the workings begin again, being repeated as often, sometimes, as eight times in a season. The coming spring Mr. Schmidt proposes, instead of hand working between the vines as usual, to sow white clover around them, believing the sod will keep the roots of the vines cooler. The cultivation between the rows will of course be continued.

Of manures for the vine, stable manure is preferred above all other, except for its excessive cost; after that bone dust or bone ash. The ensuing season experiments are to be made on a considerable scale with Prussian potash salts.

Mr. S. has made a number of trials of foreign varieties of grapes, including some from the Rhine and others from the vicinity of Bordeaux, but finds them unable to withstand our winters, all of them dying down to the ground, and being consequently unworthy, of course, of attention from American vineyardists.

The pruning of the vines begins immediately after the crop is removed and continues till March, or until all the vines are trimmed, the system varying somewhat according to the variety and its characteristics of growth.

The soil and climate of this section are considered by Mr. Schmidt to be admirably adapted to the cultivation of the grape, and he can suggest nothing as lacking for complete success, unless it be *more manure at less cost*, a want which many of his fellow culturists in other fields will loudly echo. There are no secret processes in his operations, and to persons who contemplate planting vineyards for the production of wine, he is willing freely to impart of his knowledge and experience, being anxious to see the business extended, believing that it would be to his

interest to see vineyards established on every side of him. This indeed is being already done, his example having already produced fruit in his immediate neighborhood, where several small vineyards have been set out and the manufacture of wine on a small scale begun, the owners having received valuable hints as well as procured their vines from Mr. S., who makes the sale of the latter a portion of the business of his place.

The wine produced on this vineyard all comes to the agents of Mr. Schmidt in Baltimore, Messrs. Geyer & Wilkens, of 117 W. Lombard street, a very respectable house largely engaged in the tobacco trade with Germany and Holland, and who, in addition to that sold in this city, make large shipments of the wine to other places

As a matter of interest, and to show the value of the products of the vine, we give the prices at which these wines are sold by this house—in quantities of say five gallons, there being some reduction on larger quantities: The red and white Concord, $1.50; the Ives and the Norton's Virginia, $2; the Delaware and Iona (mixed) and the Perkins, $2.50 per gallon.—*American Farmer.*

GRAPE LOUSE.—The Phylloxera perplexes alike vineyard proprietors and entomologists, but from opposite motives. Is the insect a cause or an effect, or having originated by a simple effect, has it now become a direful cause? It was found on the vines long before 1867. It is proposed to sow, about the middle of October, the *Madia sativa*, between the vines, at the rates of 8lbs. per acre; the plant quickly springs up, and attains the height of nearly two feet apart in April, shading the soil by its branches; in June it flowers and yields a glutinous exudation, which catches the bug like bird lime, and emits at the same time a mephitic odor calculated to finish him. Some prefer to sow this plant around the field of vines, to form a sanitary hedge. Others recommend dusting the roots with orpiment (sulphuret of zinc) which proves so efficacious in Persia, as an insecticide powder. In fact, there is no end to receipts—the cures only are wanting. An agriculturist draws attention to his farm which was infested with thistles; he tried every means to extirpate them; weeding even failed. By laying the land down in lucern, and cutting the forage as frequently as was profitable, the nuisance disappears—thus a practical denial is given to *nemo me impune lacessit*—*Correspondence of Prairie Farmer.*

THE NECTARINE.—This fruit, possessing all the excellence and characteristics of the peach, with the glossy skin of the plum, and perhaps unequalled in beauty by any other fruit when finely grown, has been nearly given up by most cultivators on account of the destruction of the crop by the curculio. This insect selects young nectarines in preference to all other fruits for the deposit of its eggs, which has made it nearly impossible to secure a crop. But now that efficient means have been devised for destroying the curculio, we would advise those cultivators who are willing to take the necessary trouble to protect the fruit, to set out nectarine trees. The former modes of jarring the trees by striking them with padded mallets and other inefficient tools, brought down but a portion of the insects; but the better way of giving them sharp blows on the heads of inserted iron spikes, makes thorough work, brings all down, and is more expeditious. Nectarine trees may be set out the present autumn, if the soil is well drained or naturally dry, and the exposure is not a windy one.—*Country Gentleman.*

FOREIGN INTELLIGENCE

THE ENGLISH HOLLY.—As we write these lines, cart loads of holly are passing our windows, Mistletoe pours into our great metropolitan market by the ton, and Spruce Firs, in quantities sufficient to form a veritable Wood of Birnan, are carried by our doors. Away in the country, shrubberies have been ruthlessly despoiled of their stores, the orchards of Somerset and Worcester, of Normandy and Brittany, have yielded their stores of mystic Mistletoe, and nimble fingers are gaily stitching and tacking and nailing the leafy devices which are to quicken our thankfulness, gladden our hearts, and testify that even in the gloomiest of mid-

winters hope and joy and good fellowship are to be found among us.

If we remember that there is nothing in the spelling of the words "holiday" and "holy-day," to justify our pronouncing the former as if it were spelt holliday, and that this pronunciation is solely determined by custom, it will not be difficult to believe that what we now call the Holly Tree was by the earlier writers upon plants spoken of as the "holy tree." But if we go back to the Saxon, we find "Holegn" is the Holly tree, while "halig" is holy. In Anglo-Saxon times, too, the Holly was, according to Dr. Prior, called "elebeam," or oil tree, from its branches having been used for Olive branches and strewed before the image of Jesus, in certain solemnities of the Church that represented His entry into Jerusalem. It is evident that the fruiting branches of the tree have long been in use for religious festivals amongst many northern nations in Europe, since we find it called Christmas in England, Christdoan by the Germans, and Christoon by the Swedes and Danes. Doubtless its "thorny leaves, and berries like crimson drops," have been regarded by Christians in all times as symbolical of an event which they thankfully keep in remembrance.

We all know how extensively the branches of this tree are used for decoration at this season, both in houses and churches, both with berries and without berries, although there is no Scriptural authority or warrant for its use, since none of the kinds grow in Western Asia, and it is not one of the trees mentioned in the Bible.—*Gardener's Chronicle.*

ORIGIN OF THE BOTANICAL NAME ANDROMEDA—Botanists are frequently taxed with the want of euphony and of poetry in the *Plant Names* which they bestow; and it must be admitted that many fearful "jawbreakers" might be cited in support of the charge. Occasionally, however, we find names bestowed in a more romantic spirit; and such is the case with the Andromeda, a title which Linnæus first bestowed upon our British example of the genus, A. polifolia. In his "Tour in Lapland" he tells us of the connection between the flower and the heroine of mythology which led to his selection of the name:

"As I contemplated it, I could not help thinking of Andromed , as described by the poets; and the more I meditated upon their descriptions, the more applicable they seemed to the little plant before me; so that had these writers designed it, they could scarcely have contrived a more apposite fable. Andromeda is represented by them as a virgin of most exquisite and unrivalled charms; but these charms remain only so long as she retains her virginal purity, which is also applicable to the plant now preparing to celebrate its nuptials. This plant is always fixed on some little turfy hillock in the midst of the swamps, as Andromeda herself was chained to a rock in the sea, which bathed her feet, as the fresh water does the roots of this plant. Dragons and venomous serpents surrounded her, as toads and other reptiles frequent the abode of her vegetable resembler, and when they pair in the spring. throw mud and water over its leaves and branches. As the distressed virgin cast down her blushing face through excessive affliction, so does this rosy colored flower hang its head, growing paler and paler till it withers away. . . . At length comes Perseus, in the shape of summer, dries up the surrounding water, and drives away the monsters, rendering the damsel a fruitful mother, who then carries her head (the capsule) erect."—*Gardener's Chronicle.*

LEAKY BOILERS.—Here is a hint which some of our practicals might do well to act on, if necessary; it refers to an expeditious method of stopping a leak in a boiler. M. Paul Hanguel, in the *Revue Horticole*, calls attention to a self-acting, costless, and instantaneous remedy for this troublesome and, it may be, dangerous accident. The plan so confidently recommended consists in getting a quantity of horsedung (7—8 litres, say a gallon measure), stirring it thoroughly till it is completely dissolved, and then pouring the mixture into the boiler. If the leakage is not stopped by this proceeding, the plan may be repeated a second time. M. Hanguel declares that he has repeatedly tried the plan, and always successfully. We should be glad to know if this method has been tried here.—*Gardener's Chronicle.*

HYACINTHS IN WATER.—To have good Hyacinths the *Gardener's Magazine* recommends a correspondent: "You do quite right in putting the bulbs in a dark cupboard until they are rooted. Rain water is preferable to hard water, and does not require changing, unless it becomes impure, and then it should be replaced with

tepid rain water. We do not recommend any addition, as you suggest. Single varieties are the most suitable for growing in water, but none of the varieties will produce such fine spikes of flowers as they will do when planted in a generous compost."

THE CALIFORNIAN THISTLE.—The following Notes were read before the Royal Society of Tasmania by Mr. W. Archer, F. L. S. :

"The genus Carduus, as established by Linnæus, consists of what are called 'true Thistles,' with a hairy pappus or calyx ; and 'plume Thistles,' with a feathery pappus or calyx. Bentham, in his 'Handbook of the British Flora.' follows Linnæus, but some botanists class the 'true Thistle' under the genus Carduus, and the 'plume Thistles,' under the genus Cnicus or Cirsium. The Milk Thistle (Carduus Marianus) represents the true Thistle in Tasmania, and the Carduus lanceolatus, or Spear Thistle (Cnicus lanceolatus of the British Flora of Hooker and Arnott), the Plume Thistle. The Spear Thistle of England is what is called in Tasmania the Scotch Thistle, but it is not by any means peculiar to Scotland. (The Scotch heraldic Thistle is the Onopordon Acanthium, which is a native of Central Europe and of Asia, but certainly not a native of Scotland, according to Bentham.) The Spear Thistle (Carduus or Cnicus lanceolatus) has a biennial root-stock, which sends up for two years (after which it dies) annual stems, winged and prickly, with broadish, pinnatified, prickly-lobed leaves, and large, egg-shaped flower-heads, enveloped in involucral spreading bracts, with stiff, largish prickles. The Creeping Thistle (Carduus or Cnicus arvensis) has a perennial and creeping root-stock, which sends up perpetually, annual stems, with rather narrow, pinnatifled, very prickly-lobed leaves, and dicœcious flower-heads—the male flower-heads nearly globular, and the female flower-heads egg-shaped, enveloped in involucral appressed bracts, with small prickles. Both the Spear Thistle and the Creeping Thistle are found abundantly in Europe and Asia. The Spear Thistle is, of course, the more easily destroyed of the two; the Creeping Thistle seems to be quite ineradicable. The Creeping Thistle is mentioned by Prof. Johnson as being called in the United States of America the Canadian Thistle—probably because it traveled thither from Canada ; and so I suppose, the same Thistle is called here the California Thistle because it has come to us from California. It is, nevertheless, the Creeping Thistle of Great Britain, and it never quits a country into which it has been introduced."

A NEW VEGETABLE.—The *Gardener's Chronicle* says : "In the current number of the *Journal of Botany*, Dr. Hance describes a Chinese Culinary Vegetable, consisting of the shoots of a grass, Hydropyrum latifolium, wild in Northern China and the Amoor Land, and cultivated in Southern China in standing water. As brought to market the 'cane shoots' occur in cylindrical pieces of a white color, 2½–3½ inches long, 1 to 1½ inch in diameter, tapering upwards into a conical point, and surrounded and surmounted by the leaves and culm, from which they are readily detached. In taste the raw shoot is not unlike a half-ripe nut, but it is never eaten uncooked. By the Chinese it is stewed with meat, and by foreigners cut longitudinally into two or three pieces, well boiled, and served with melted butter. Prepared in this way it is stated by Dr. Hance to be one of the most agreeable of vegetables. 'It is difficult,' says the writer from whom we quote, 'to describe its exact flavor, but it is, perhaps, nearer to that of unripe Maize, as boiled and eaten by Americans under the name of green corn, though it possesses a richness and delicacy to which I know no parallel in any other vegetable.' The species in question is nearly allied to the American species H. esculentum, formerly grown in this country. There is little doubt that the Chinese plant would also thrive in our climate, on which account we are glad to hear that Dr. Hance intends to send home living plants."

HOYA BELLA.—This beautiful little plant is not met with so frequently as it should be, for it is one of the most charming of small stove plants. The essential points of its treatment are: A strong moist heat while growing; abundant moisture at the root ; and a perfectly open well-drained soil. The latter may consist of a mixture of about equal parts of good fibrous peat, leaf-mould, and sand. When started in spring the temperature should be from 65° to 70° ; when ripening in Autumn from 55° to 60°—the plant being then placed on a shelf near the glass and kept drier, though not so much so as to affect the foliage. It is a good stove basket plant.—W. H. O., in *Gardener's Chronicle.*

FOREIGN CORRESPONDENCE.

HORTICULTURAL OBSERVATIONS IN ENGLAND, No. 6.

Took a stroll the other day through the nursery establishments of Messrs. Veitch, also Lucombe Pince & Co., Exeter. The Veitch nurseries are not so extensive as they were some years ago, as the original place has been broken up and built upon, but the present one is compact, well stocked and well conducted. They are located in a prominent part of the city. You enter the grounds through a broad, well gravelled walk, well planted on both sides with fine specimen Rhododendrons, all the choice varieties of Coniferas, &c. As you approach the houses there is a choice and large collection of Alpine plants in pots plunged in sand. In the houses also are numerous fine specimens, many of them grown specially for exhibition purposes—such as Anthuriums, Allamandas, Clerodendron Balfourii, Ferns, &c. Among new things in the Fern tribe was Davallia Tyermanii, which promises well. Among climbers, Tacsonia exoniensis, which they have a fine stock of. Croton multicolor and various other varieties. Take it altogether, it is a well conducted establishment, and well worth a visit.

The Lucombe & Pince nursery, since the death of Mr. Pince, is carried on by Dr. Goodman, a relative of the family. It still maintains its reputation as a first class nursery in all its various departments.

The first object that arrests the attention on entering the grounds, is the *Original Lucombe Oak*. It is now a noble tree. On the opposite side of the road are two magnificent Pinus insignis, fifty feet high I should think. Also superb plants of Araucaria imbricata, the finest in the country I presume. Irish Yews from one foot to twenty, by the hundreds. One of the best examples of rock work I have ever seen is here—whether you take the variety and size of the rocks that compose it, the natural and artistic manner in which they are thrown together, or the beauty and appropriate variety of the plants that adorn it. There is a natural ruggedness about it which is extremely pleasing. In dimensions, I should think it must be over one hundred and fifty feet in diameter, but when you get inside it is such a perfect labyrinth of twists, turns, caves, &c., that it is difficult to imagine what size it is. Among the plant drapery that adorns it, the most striking were Skimmia Japonica, Desfontainea, Abies Gregoriana, A. pymæa, Cupressus echiniformis, Thuja gigantea, Thujopsis dolobrata, and Biota orientalis, fifteen feet high; Cotoneaster, Pampas Grass, all the hardy ferns, &c. Near by, overshading our fine English Yews, Abies nobilis, twenty-five feet high; Sequoia gigantea, forty feet; Abies pinsapo, about as high. Quite a sudden contrast to this near by is the formal, but tastefully designed Italian Garden, completely enclosed by a perfect clipped Yew hedge six feet high. The enclosure is about one hundred and sixty feet long and one hundred and thirty wide. A Pergola, or arbor runs through the centre, covered with Wistarias, Passifloras, and all the various climbers. On both sides of the arbor are long formal beds in the grass, artistically planted with the scarlet and variegated Pelargoniums, &c. Then running parallel the whole length are Irish Yews, twelve feet high, planted in pairs; between each pair are large white vases filled with choice plants. This is quite a pleasing illustration of the Italian style on a moderate scale.

Time will not permit me to remain with you in the open air any longer, so let us take a peep at this far-famed camellia house. Here it is in all its majesty. It is a noble house, and contains some regal plants. It is two hundred and forty feet long. The side walls about fifteen feet high, completely covered from end to end like a mass of ivy—and when I saw it before in February, this wall was covered with flowers as well as foliage. One row of plants only occupy the centre—but such plants! They are as large as fair sized apple trees. Some eighteen months ago the roof of the house was raised at a cost of £600. Near to this is another large house filled chiefly with choice hard wooded plants. The Heath family is well represented here. This tribe has not received the attention during the past twenty years as it did the preceding twenty; but they are waking them up again now. They have a tolerable good stock of plants in various sizes. In bloom were E. vestita alba, E. perspicua nana, E. ventricosa magnifica, (fine), E. Hartnellii, E. ampulacea, E. ventricosa coccinea, and many other varieties. A fine plant of Phenocoma prolifera Barnesii; also

Aphelexsis macrantha purpurea, Genetylis tulipifera. Fine plant of Acacia grandis, Pimelias and Eriostemons, Leschenaultia formosa, biloba, &c., and a good plant of the beautiful biennial? Clianthus Dampierii in bloom.

Pardon a digression for a moment. On the first of April I was passing through a sunny little village on the banks of the Teign, when I observed a climber trained up the front of a pretty cottage, almost covered with deep scarlet or crimson pendulous flowers. I could not conceive what it could be, so I opened the little gate and walked up to the house, and to my surprise found it was Clianthus puniceus. I could not resist the impulse to manifest my surprise to the owner of the house, so I rapped at the door and a lady came out, and she told me it had been planted out there about three years, and that she cut four or five spikes of bloom of it on Christmas day to decorate the font in the village church.

But to return to the nursery. There is in all about thirty plant houses in this establishment, all well filled and in fine order. They have fine plants in tubs, boxes of the Conifera. &c., for decorative purposes, such as Thuja Donniana, T. Dolobrata, Cryptomeria elegans, Araucarias, Palms, &c. They also have a manufactory adjoining the nursery, where they make frames, sashes, vineries, and other horticultural structures. Also keep an experienced landscape gardener and draughtsman for designing and laying out new places and improving old ones, and I must add, from what I have seen of their work in this line of business, that it would require talent of no mean order to equal or surpass them in design, execution or planting.

Newton Abbott, Devon. J. W. W.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

AUTUMNAL EXHIBITION.

Philadelphia, September 16th, 17th, 18th and 19th, 1873.

The Members of the Pennsylvania Horticultural Society desire to make the Autumnal Exhibition this year, as far as possible, National in its character, preparatory to the Grand Centennial Exhibition in 1876 The grounds for the Horticultural Garden, the Grand Conservatories and Plant Houses for the Centennial Exhibition, have already been set apart by the Commissioners, and it is expected that some of the buildings will be erected early next year.

The meeting of the American Pomological Society will be held this year in Boston, on the 10th of September, nearly a week before the Exhibition of the Pennsylvania Horticultural Society, which will enable Fruit Growers from the South and West to visit Philadelphia conveniently on their return home, which they are cordially invited to do.

The Pennsylvania Horticultural Society will be happy to hold a conference with Horticulturists from other States, as to the requirements of the country in regard to the Centennial Exposition of Horticulture in 1876, for which we are already working with much zeal. Prominent members of our Society are at Vienna studying the results of European labor in this department.

PREMIUM LIST.

Autumnal Exhibition of Pennsylvania Horticultural Society, September 16th, 1873.

The following are the principal Premiums offered by the Society for Fruits. The Premiums for Plants and Flowers are omitted:

COLLECTIONS OF FRUIT.

Collections of Fruit, by any State or Society, if, in the judgment of the Committee, the collections are sufficiently large and varied to merit the award, 1st premium, $100 00.

Collections of Fruit, by any individual or firm, 1st premium, $50 00; 2d premium, $30 00; 3d premium, Silver Medal.

PEARS.

Collection of not less than 100 named varieties, 3 to 6 specimens each, 1st premium, $30 00.

Collection, not less than 50 named varieties, 3 to 6 specimens each, 1st premium, $20 00.

Collection, 20 named varieties, 3 to 6 specimens each, 1st premium, $15 00; 2d premium, $10 00.

Collection, 15 varieties, 3 to 6 specimens each, 1st premium, $12 00; 2d premium, $8 00

Collection, 10 varieties. 3 to 6 specimens each, 1st premium, $6 00; 2d premium, $4 00.

SINGLE DISHES OF PEARS.

Duchess d' Angouleme, 12 specimens, 1st premium, $5 00.

Beurre Clairgeau, 12 specimens, 1st premium, $5 00.

Vicar of Winkfield, 12 specimens, 1st premium, $5 00.

Beurre Bosc, 12 specimens, 1st premium, $5.

Lawrence, 12 specimens, 1st premium, $5 00.

Any other variety approved by the Committee, premium, $3 00.

APPLES.

Collection of named varieties, 6 specimens each, 1st premium, $20; 2d premium, $10.

Collection of 12 named varieties, 6 specimens each, 1st premium, $5 00.

Any variety, 12 specimens, approved by Committee, premium, $2 00.

Packages of Fruit may be sent by Express, addressed as follows: THOMAS A. ANDREWS, *Superintendent of Exhibition*, Horticultural Hall, Philadelphia, Pa.

The *Fruit Committee* have power to award any other *Premiums for Collections of Fruits*—or single dishes of great excellence—to any extent that the merit of the specimens may require, which awards are always sanctioned by the Society.

A PLANT AND FLOWER MARKET will be held in the *Lower Hall*, during the continuance of the Exhibition, where contributors may offer for sale any Plants, Trees, Flowers, or other Horticultural products. This has been found to be a very interesting and useful feature of the Exhibitions.

NORTH CAROLINA FRUIT.

At a Meeting of the Pennsylvania Horticultural Society, held on the 20th of May, 1873, a resolution was passed, as follows:

Resolved,—The Pennsylvania Horticultural Society having learned that the soil and climate of North Carolina is exceedingly favorable to the production of fine Fruit, we hereby earnestly invite the Fruit Growers, Societies and Amateurs of that State to send specimens of their products, such as Apples, Pears, Grapes, and specimens of native Wine, &c., to the Autumnal Exhibition of this Society, to be held in Philadelphia, on Tuesday, September 16th, 1873, to continue four days—and that tables be set apart for the display of this Fruit, and that Money Premiums and Medals be awarded by the proper committees, for such collections of Fruit, agreeably to the published schedule of the Society.

Packages may be sent by Express, addressed to Thomas A. Andrews, Superintendent Horticultural Hall, Philadelphia, Pa.

Letters respecting contributions, may be sent to the same address.

GERMANTOWN (PA.) HORTICULTURAL SOCIETY.

The second exhibition of this new Society held the end of June, afforded some facts which have more than a local interest. Among the cut flowers was one of the richest vases of flowers that could possibly be made. This was wholly composed of the flowers of Amaryllis, Johnsonii, White Oleander, and the leaves of Mahonia aquifolia, with a few white Deutzia scattered through. In another collection excellent use had been made of the leaves of *Centaurea gymnocarpa*. In Roses for cut flower work, there seems to be nothing that will compare for general usefulness with Saffrano and its offspring, Isabella Sprunt. Mr. Baumann, in his Plateaus of cut flowers, used them extensively.

A very good plant for arches, designs and so on, is *Lythrum Salicaria*. A hardy herbaceous plant, pretty well known. It does not wither so easily as many flowers; and after it has withered still makes a show. It was used with much effect in one of the designs.

Among summer decorative plants, in tubs for lawns, few are better than the *Eugenia Jambos*. The large bay-like leaves, and silky tassel-like flowers are freely produced, and look fresh under our hottest suns. Mr. Berry, gardener to Mr. Adamson, had a very well grown plant.

To most gardeners a very interesting plant was one from Mr. Wister's—a very large specimen of an Azalea, with hundreds of blossoms. We boast of our skill in getting flowers early, but an Azalea so retarded as to be in full bloom at the *end of June*, is surely an accomplishment of which one may be proud. There were some fine plants of *Hoteia* (spiræa and astilbe) *Japonica* by Thos. Hendricks, gardener to Mr. John Jay Smith. One plant had fifty spikes of flowers. This is the plant now so popular for winter forcing. He also had Heliotropes several years old in pots, blooming profusely. Miller & Hayes, in their collection, had a nice plant of the gold blotched Euonymus, which makes a very ornamental tub plant, on account of the

freedom with which it produces flowers, as well for its ornamental leaves. From Meehan's Nurseries was a *Stanhopea tigrina*, with half a dozen unexpanded flowers, exhibited chiefly to show that many of these orchids can be grown to great perfection in common greenhouses. William E. Meehan, a young son of the Editor of *Gardener's Monthly*, made his debut as a professional florist by obtaining the first premium for basket of cut flowers. The *Lilium longiflorum*, of Mr. Newett, were superb. The "Lilies of the field" never excelled these in purity and sweetness. In the search for new lilies, let not this desirable old one be overlooked. Some exhibitor had a collection of Phlox *Drummondii*, of a very great variety of form and color. The perfection to which the Germans have brought this Phlox is wonderful. Mr. W. J. Young, who is known to our readers as leading in the growth of fruit trees in pots, had a good specimen of peach with numerous fruit in a twelve inch pot, which pleased everybody. Mr. Kinnier, florist, had also some very attractive rustic ornaments, in which various kinds of rare Ivies were made to play very useful parts.

June exhibitions, unless early, are very heating kinds of mental food. This was a success; but a May meeting would probably be more so.

Mr. Housely, gardener to Mr. Somers, had a splendid Epiphyllum Jenkinsii, a first-class, though old-fashioned summer blooming plant. And speaking of summer blooming plants, we must not forget the Fuchsias. Mr. Lonsdale, house foreman at the Germantown nurseries, had a young one of Rose of Castile, very well grown. Mr. Casey and L. C. Baumann also had good plants of popular kinds. After all said about various things, there is nothing better for summer blooming pot plants than good Fuchsias.

MONTGOMERY COUNTY HORTICULTURAL SOCIETY.

Dayton, Ohio, April 5th, 1873.

The Society met at the residence of William Kramer, Esq., on Wednesday. The attendance was very fair, considering the muddy roads and chilly wind which prevailed, and what was lacking in numbers was made up in sociability and good feeling. Mr. and Mrs. Kramer bestowed every attention upon their visiting friends, and fully sustained their high reputation in this respect.

The morning was spent in examining the grounds of Mr. Kramer. A portion of the gentlemen, under the lead of the host himself, took a tramp through the vineyard, examined the blackberry and raspberry buds, &c., whilst others, with the ladies, visited the greenhouses, which were filled with choice flowers, all in the most thrifty and healthy condition.

After dinner was over, President Ohmer called the meeting to order and the regular order of business was proceeded with.

The subject of planting trees and shrubs was discussed by several of the members. Mr. Mumma remarked that in planting, care should be taken not to crowd the roots in planting out trees. The holes where they are to be planted should be made six or eight inches larger than required to admit the body of roots, and from two to three feet deep, filled with good surface soil, on which to place the tree or shrub to be planted. He also preferred spring to fall planting. In removing from the nursery, secure all the roots possible with the tree, and trim the tops closely, always to correspond with the root. President Ohmer believes in shallow planting on heavy clay soil, and mounding the dirt around the tree. Mr. Longstreth, by excavating holes two feet square and two feet deep, and filling with good soil, and securing good drainage, for grapes and peaches, secured a rapid growth. President Ohmer said grapes needed dry soil and dry atmosphere. Mr. Clough had failed with grapes planted in deep holes, but by thorough pruning and planting shallow, was meeting with success. Mr. Kramer thought deep plowing, in ordinary soils is sufficient preparation of the ground for grapes.

Mr. Van Ausdal had found it necessary on a retentive clay soil, to underdrain, in order to secure a crop of grapes.

The general opinion of those present seemed to be that for grapes, where there was natural drainage, a thorough pulverizing of the soil was all that was necessary, otherwise sub-soiling would have to be resorted to in order to remove the surplus moisture.

Mr. Linxweiler spoke of the progress made in the manufacture of native wines, and praised highly Norton's Virginia Seedling Grape for that purpose. He was of the opinion that wines would soon be made in this country equal to the best wines of Europe. President Ohmer said the Ives Seedling seldom rots or mildews,

although not a first-class wine grape, by combining the Ives and Concord in equal proportions, produced a good wine, a sample of which he exhibited to the meeting, and on being tested was quite highly praised.

FRUITS AND VEGETABLES.

President Ohmer exhibited apples called Bentley's Sweet, of very fine appearance, and possessing extra keeping qualities, which highly recommend it to cultivators. He stated that they bore fruit the fourth year after planting on his farm.

Pears were also shown by Mrs. Dudley, remarkably well preserved.

The committee reported as follows:

COMMITTEE ON FRUITS.

Your committee would report that two varieties of fruit were submitted, to wit: Apples—Wine Apples, by N. Ohmer; Bentley, sweet, a new variety from Eastern Ohio, fine keeper—keep until July, also handsomely colored, and neither sweet nor sour in flavor. Pears from Mrs. Duell, fine keepers; flavor, sweet, good for preserves. This pear seems to be the Oak Leaf variety.

WM. LONGSTRETH,
J. H. W. MUMMA,
JAMES M. SMITH.

Mr. John Powell communicated the following paper on

PEAR TREES.

As the season of planting fruit trees is now close at hand, I would suggest the best kinds of pears for our soil and climate, and will make a list of some kinds ripening in succession. I would remark that this list is for standard trees:

Doyenne d' Ete, best early variety, July 1st; Rosteiser, a first-rate fruit, two weeks later; Tyson, rich and good, a shy bearer, July 25th; Clapp's Favorite, a noble variety, new and fine; Bartlett, a royal pear in all respects, August 1st; Flemish Beauty, a grand fruit in this region; Onondaga, large, handsome, but rather tart, September 6th; Howell, a noble, large, rich pear, October 6th; Buerre d' Anjou, new and ranked as best; Lawrence, first-rate, juicy and a good bearer, November; Mt. Vernon, new, promises first-rate; Doyenne d' Alencon, new and a good keeper; Buerre Easter, keeps through the winter, but is very difficult to ripen. I have not ripened it yet. As to dwarf pears, I have come to the conclusion, after nearly twenty years experience, that they are not worth growing for profit. If I had a small city lot and wanted some playthings, I would have a few dwarfs. I have quite a number that have thrown out root from the pear stock, and from these I get a good supply of fruit.

Compton's "surprise" potatoes were shown by John Sackstedter. This new variety, sent out this year for the first time, is reported to have yielded last season at the rate of 826 bushels per acre, and sell now at the moderate rate of three dollars per pound. Mr. Sackstedter will undoubtedly report his success with it next fall.

June, 1873.

The June meeting of the Montgomery County Horticultural Society was held at the residence of Mr. John Sackstedter, on the river road, a short distance southwest of the city. Notwithstanding the very busy season, the attendance was good, quite up to the average, indicating that there is no lack of zeal in the cause of horticulture on the part of its friends in Montgomery county, at least.

After discussing the merits of a substantial collation skilfully prepared for the occasion, where entire unanimity of sentiment seemed to prevail, the company adjourned to the parlor, when President Ohmer called the meeting to order. The Secretary being absent, on motion, Wm. Ramsey was appointed *pro tem*, and regular business proceeded with.

The minutes of the last meeting were read and approved.

Mr. J. H. W. Mumma, Committee on Small Fruits, was not ready with a written report, but would state verbally that the prospect of an abundant yield of small fruit did not seem to be very flattering. His strawberry crop would be materially short, not much exceeding a quarter of a crop. The same was partially true of his blackberries; indeed, so far as their cultivation was concerned, he began to feel symptoms of discouragement. The Mammoth Cluster Raspberry seemed to be the only one among the more valuable of the small fruits which has come unscathed through the severities of the past long and unusually cold winter.

Mr. William Kramer, upon the subject of grapes, reported that they seemed to be doing well.

SMALL FRUITS AND VEGETABLES.

Mr. S. M. Sullivan opened the discussion by triumphantly holding up to view a basket of

magnificent Wilson's Albany Strawberries, and facetiously exclaiming, "do you call *these small* fruits!"

Mr. J. M. Smith wanted some information with regard to the qualities of the Green Prolific strawberry. Mr. Kramer and Mr. Mumma concurred in representing this variety as quite promising; the plants were hardy, the fruit large and of good quality, in flavor nearly equal to Burr's New Pine, and in productiveness approaching the standard of the Wilson, lacking only in the quality of firmness. Mr. Clough had failed in getting his plants to grow, although he had bestowed upon them the tenderest care.

Mr. Mumma called the attention of the members to the fact that the blackberry plant this season is more or less affected with a species of rust, particularly the Kittatinny variety. What is the probable cause and remedy?

Mr. Ohmer had noticed the same phenomenon; it was probably a species of fungi; on his grounds the Kittatinny appeared to suffer most; he suggested that the best remedy was to dig up the affected plants and burn them.

Inquiry was made as to whether the Colorado bug had made its appearance or not. This gave rise to a somewhat extended discussion of the subject of entomology, or rather that branch of it which treats of insects destructive of fruits, flowers, &c.

Mr. Ohmer remarked that Professor Riley, an accomplished entomologist, at the meeting of the United States Agricultural Society, recently held at Indianapolis, stated that a new and destructive insect, somewhat resembling in appearance the measuring worm, but different, had made its advent in the forests west of Indianapolis.

Mr. Pierce stated that the slugs so destructive to the rose appear not to be so numerous or destructive as formerly. Paris green, applied in a liquid form, or as a powder, was recommended as a good agent for the destruction of the slug or any similar insect.

The question was asked about how strong the solution should be to kill the rose slug.

Mr, Ohmer replied that Prof. Riley recommended one part Paris green and thirty parts of flour as amply strong enough to kill these insects, if the Paris green was genuine, but that none was genuine except that possessing a deep green color.

Mr. Smith cautioned the public against purchasing an adulterated article.

Mr. Ewing remarked that a druggist told him that the genuine article is never sold at retail.

Mr. Clough observed that there is in existence a small force pump, for the purpose of applying the Paris green in a liquid form.

Mr. Ohmer here remarked that the planting of shade trees along the public highways was a good thing, and hoped the committee, whose duty it was to invoke the aid of legislation in the furtherance of this object, would push the thing along with vigor.

Mr. Jonah Bull thought that the planting of shade trees ought not to be restricted to sixty-foot roads, but should be extended to those forty feet wide, also, an opinion generally concurred in.

The discussion taking a wide range, the subject of fences, stock running at large, &c., came in for a share of attention.

Mr. Ohmer thought fences a very expensive luxury to indulge. Those in Ohio alone costing not less than one hundred and fifty-five millions of dollars, and their total cash value in the whole United States being sufficient to pay off the National Debt.

Mr. Steele remarked that a gentleman from Cleveland, on a visit to our city recently, expressed great surprise that stock was allowed to run at large.

Mr. Smith said that a proposition to establish a pound within the city limits to enclose stock running at large, &c., was lately laid on the table by the City Council. A member suggested that perhaps a prudent regard for the contingency of a re-election to office had something to do with the disposition of that proposition.

"Yes," responded Mr. J. H. W. Mumma, "I know something about that sort of thing myself, for I was a candidate for Trustee in my Township this spring, and my well known determination to enforce the stock law, caused my defeat."

Mr. Van Ausdall offered the following resolution, which was adopted with but one dissenting voice:

Resolved, That this Society notices with pleasure the introduction into the City Council of a proposition to establish a pound to enclose stray swine and cattle running at large within the city limits. In the opinion of this Society the enforcement of the State law prohibiting the running at large of stock would greatly promote the comfort and convenience of the people of the city and country, and would save the expenditure of thousands of dollars of money each year.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

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HINTS FOR SEPTEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

In most of the countries of Europe, summer gardening is the most attractive, and most that is done there is with that view. With us the spring and autumn is more enjoyable, and if American gardening is ever to have a distinctive feature of its own, it will be efforts specially directed to one or both of these. Our summers are usually hot and dry, and people are either "away," or very much indisposed for out-door enjoyment, except such as may be found in shady woods, or on some heights where the cool breezes blow. At any rate we shall not go wrong by doing our best for good effects with spring flowers, and it is time to think about these things now. There is scarcely anything more beautiful in spring than a bed of Hyacinths and Tulips well intermixed. The Hyacinths go out of flower just as the Tulips come in. In the spring Gladiolus and Tuberoses can be placed between these; or if desirable, some flowering bedding plants, and in this way the gaiety and interest can be preserved from spring to fall. Crown Imperials are capital things for the centre of small beds, and the regular bedding plants can go round them. Narcissuses keep their foliage too long after flowering, as does the Snowdrop. These can hardly be made available where regular bedding is desirable for summer. They are best in odd patches by themselves. Crocus does well anywhere. It may even be set in the grass about the lawn, as it is generally over before the first mowing takes place. But it would not be admitted into our best kept lawns. The vast tribe of lilies come in rather late for spring gardening, but few will care to be without them. Besides these there are many little items which are noted in almost all bulb catalogues, from which many interesting spring blooms can be had. No one will go amiss in looking well to this class of plants. The best time to plant is from now to frost. Mice and vermin are very liable to attack these roots. Poisoning is the best remedy.

In traveling through the United States, one cannot but be struck with the fact, that there is a growing taste for gardening as a fine art; but that very little knowledge exists as to what should or could be done. It is, indeed, surprising with so much attempted gardening, there should be so little true taste; and yet not more so perhaps, that there should be so many buildings and so few fair specimens of fair architecture. Yet it is not that our people are slow to learn, but that they have nothing to learn from. The great want of the time is a better knowledge of landscape gardening, and true taste among our nurserymen and florists. In some places it is easy to see that there is some one about. At Boston, New York, Philadelphia, Cincinnati, Cleveland and St. Louis, it is easy to see by the not uncommon specimens of good taste, that there is one somewhere near who has been sowing the good seed, and in other places we see once in a while a specimen of what good gardening should be; but generally this is the result of missionary work from the places before mentioned, and not from regular residents on the spot. Good landscape gardeners are wanted all over the country; not men whose ideas run into the higher and more expensive channels of arts,

although these are by no means so numerous as they ought to be; but good men who have the capacity to regulate their recommendations to what those who employ them can understand and afford. As we have said, nurserymen and florists might do more by example. It is very rare that we see any place with any more taste than a common fruit garden or farm, where a single eye is kept to the immediate return of every dollar spent and nothing else. We know that nothing pays a florist better than to lead off in these matters of taste. He creates a custom, which it is very profitable to him to supply. We know one who takes a pleasure in doing a little every year. He cannot do much, but every year he does something which every one admires. Last year he moved a few large arborvitæs of which he had an over stock, very carefully so as to make a background to a small curved border. Adopting our hint about the beauty of Hollyhocks when seen against a background of evergreens, he has a row of most beautiful varieties forming a line in front of these. Then he has a row of Coleus in front of these, again, before these is a row of Chrysanthemums, and in front of them a row of bedding Geraniums of many shades of color. So pretty is the effect of even this simple arrangement, which may be so easily improved on, that it is admired by so many as to get him many orders for similar material next season.

Another matter we saw which pleased us. There were on the lawn belts and borders of shrubbery; but in front of these belts were Geraniums, Petunias and Verbenas, besides other gay colored bedding plants. Now beds of these plants are very common in flower gardens, but this combination of shrubbery and flowers is very unusual, and is capable of very varied application. It is just these little things which cost nothing much but a few minutes study, which every nurserymen and florist might have, and which would go a long way to develope the taste for beautiful grounds, which everywhere exists, but dormant for want of some encouragement of the kind.

Shrubs for this kind of gardening we have alluded to, should of course be of a free flowering character. Of those which can be made very effective, the following may be used: Pyrus japonica, the red and the white; Spirea prunifolia, S. Reevesii; S. Billardii; Deutzia gracilis, scabra, and crenata pleno; Weigelia rosea and W. amabilis, Philadelphus coronarius, and P. Gordonianus; Forsythia viridissima; Hypericum prolificum; Altheas in variety; Persian, and even the common Lilacs; Tartarian and Fly Honeysuckles; Hawthorns, Double Almonds, and perhaps some others. But all these are common in most nurseries; are very easy to grow, and very pretty effects may be had at a small outlay.

Many persons who have got but a few of these plants, will like to raise some more. The end of the month is a good time to take off cuttings, unless the weather be very warm. Of those we have named, all but the Pyrus and Almond will grow by cuttings. These two grow by pieces of roots. Cuttings should be made about four or six inches long, and planted out in rows, and set two or three inches below the surface of the ground. In spring planting we put them right level with the surface.

In many parts of the Northern States the leaves will have changed color previous to the incoming of winter, and the planting of trees and shrubs will commence as soon as the first fall showers shall have cooled the atmosphere and moistened the soil. Further south, where the season will still remain "summer" a while longer, the soil may, at any rate, be prepared, that all may be in readiness when the right season does come. What leaves remain on should be stripped off, and the main shoots shortened. They will then do better than if planted very late. In fact, if planting cannot be finished before the beginning of November in the Northern and Middle States, it is better, as a rule, deferred till spring. In those States where little frost occurs, this rule will not apply. The roots of plants grow all winter, and a plant set out in the fall has the advantage over spring set trees, that its roots in spring are in a position to supply the tree at once with food. This is, indeed, the theory fall planters rely on; but in practice it is found that severe cold dries up the wood, and the frosts draw out the roots, and thus more than counterbalance any advantage from the pushing of new roots. Very small plants are, therefore, best left till spring for their final planting. It is, however, an excellent plan to get young things on hand in fall, and bury them *entirely with earth*, until wanted in spring. Such things make a stronger growth the next season, than if just dug before transplanting.

At this season of the year, people think of making cuttings of bedding and other plants, in order for another year. The best way to propa-

gate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand cuttings of half ripened wood of the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating house. In making cuttings, it is best to cut the shoots just under a bud—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong growing things, such as Geraniums, Fuchsias, &c.

FRUIT GARDEN.

It is very strange that people will continue to grow trees year after year without any fruit, and yet praise their system as the best possible one against any thing else that can be done. We have contended for years that fruit culture will never be successful until some very different system than that usually praised shall be adopted. The ground must be so dry to grow good fruit that water will not lie 24 hours *in summer* (in winter it is of no consequence) without passing away; the fibrous roots must be kept *as near the surface* as possible and kept shaded from the intense heat of summer. Then they must be kept highly fed by occasional dressings of surface manure. These are the principles without which, depend on it, American fruit culture will, with occasional exceptions, always be a failure.

The planting of the Pear, Apple, Plum and Cherry will soon be in season; Peaches, Apricots and Grape Vines, except south of the Potomac being for the most part left till spring. Choose a dry piece of ground. If not naturally dry, it is best to throw the earth up into banks or ridges and plant on them. This is cheaper and better than underdraining. In planting, if the roots appear deep, cut away some of the deeper ones, and shorten some of the top of the tree at the same time. This is particularly true of dwarf Pears which are often grafted on rather long Quince stocks. Cut all away of the quince root but about six inches, and if this should be found to leave few roots, cut away the top correspondingly. Most of the failures with dwarf Pears comes from bad quince roots, so deep in the ground the lower parts decay, and this decay gradually communicates upwards until the whole system becomes diseased. The more tenacious the sub-soil the more necessary is it to attend to this matter. We spoke of pruning in proportion to injury. It will be found that all trees are a little injured by removal, therefore all trees should be a little pruned at transplanting.

Trees that have long stems exposed to hot suns, or drying winds, become what gardeners call "hide-bound." That is, the old bark becomes indurated—cannot expand, and the tree suffers much in consequence. Such an evil is usually indicated by grey lichens which feed on the decaying bark. In these cases a washing of weak lye or of lime water is very useful; indeed, where the bark is healthy, it is beneficial thus to wash the trees, as many eggs of insects are thereby destroyed.

Whitewash is frequently resorted to by farmers; but the great objection is its unsightly appearance—the result is otherwise good. The great opposition to washes formerly was, that the pores of the bark were closed by them—this was on the supposition that the bark was alive, but the external bark of most trees has been dead years before the time of application; and "the breathing," if so the operations of the pores can be called, is through the crevices formed in the old bark by the expansion of the growing tree, by which the living bark below has a chance of contact with the air. No matter what kind of coating is applied to the bark of a tree, it will soon crack sufficiently by the expansion of the trunk to permit all the "breathing" necessary.

VEGETABLE GARDEN.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as, if it grow to vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, the other at the end. The rule is get them only just so strong that they may live over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, brick or wood, sunk five or six feet below the surface of the ground, into which

manure, or any waste vegetable matter is filled When quite full, it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of Cauliflower. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

The main crop of Spinage should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinage for fall use.

Turnips also may still be sown. In fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching described in former hints.

COMMUNICATIONS.

RAPID POTTING.

BY MR. H. E. CHITTY, SUP'T BELLEVUE NURSERIES, PATERSON, N. J.

The process of potting plants consists of a certain combination of skilful and precise movements which result, or should result, in setting the plant in the pot in such a manner that the plant may almost immediately commence a development of roots—and extension of growth. These movements, or at least some of them, may be made with military exactness. The operator may seize the pot with one hand, the plant with the other at one and the same time; he may then complete the operation in either three or four exact movements. In the former case the plant would be potted in four seconds, in the latter case five seconds, which would amount to seven thousand two hundred (7200) in a day of ten hours. But part of the operation of potting small plants or rooted cuttings cannot be executed with such precision, viz.: the proper disposition of the roots. If the roots of the plant are pushed into the pot in a wad, the movement would then form one of the four or five, and the operation completed in four or five seconds, but if the roots were placed in the pot as they should be to make a profitable job of it, the time consumed would be about equal to all the rest, which would reduce the number of plants potted in a day of ten hours to about three thousand, or from that to three thousand five hundred, which is all that any man can do in a workmanlike manner. As no man, be he ever so skilled in his movements, can overcome the element of time sufficiently to make from four to five thousand distinct movements in an hour, each movement requiring at least one second of time, and every man at all acquainted with the potting bench, knows perfectly well that not even a rooted verbena cutting can be transferred to a pot and passed in less than four movements.

There may, however, be a method of bringing a plant, pot, and soil together with a jerk, in such a manner that once in a while the roots of a plant may happen to catch a favorable hold and the plant grow; but in this case the time and labor required in emptying the pots afterwards, will be so great that the method will never be adopted for *profit*. After considerable experience in this line, I am fully convinced that unless plants are decently handled in potting they soon show it, whether they are rooted cuttings or plants of more mature growth.

ALCOHOL A REMEDY FOR THE "MEALY BUGS."

BY J. M. JORDAN, ST. LOUIS, MO.

As I have been very much annoyed with the Mealy Bug, I have been experimenting for some time endeavoring to find something that would kill them and still not injure the delicate plants that they infest. At last I think I have found a simple remedy, and one within the reach of every one. I gladly communicate it to the many readers of the *Gardener's Monthly*.

By the application of alcohol diluted with five

per cent. of water, the Mealy Bug can be completely destroyed. The best way to apply it is to put the alcohol in a wide-mouthed bottle with a fine brush put through the cork, and apply the alcohol frequently for a few weeks, and they will entirely disappear. I have removed them from thousands of the most delicate stove plants, and have never injured one of the plants.

VEGETABLE GARDENING.

BY J. EWING, DAYTON, OHIO.

Read before Montgomery County, Ohio, Hort. Society.

Vegetable Gardening, like other kinds of farming or cultivating of the soil, is but imperfectly understood, even by those engaged in the business. But few understand how much land may be made to produce, or the way to make it produce the most. The man that produces the most from his acre adds most to his country, as well as to his own pocket. There is no one thing, perhaps, less understood than the need of fertilizers in raising vegetables.

There are but few varieties of vegetables grown but what pay in proportion to the fertilizers used, other things being equal. To experienced growers I know that I can say nothing that will benefit them. To begin I would say, in the first place, soil is of the first importance. You want light, sandy loam; without this you will always be several days behind those having the proper soil. Earliness being the cream of the business. Then you want your ground thoroughly fertilized; this you cannot do in one year, nor in two—three heavy coats of manure—then you may expect remunerating crops; but you must continue the fertilizing every year. Another thing, is being ready to put in your seeds at the proper time. Gardening consists largely in preparation. No one need be afraid of having his ground too much pulverized, even if he should plough it twice or three times, and roll it and harrow it as often. Get your ground thoroughly mellow before you put your seeds in, then you are ready for your planting. Now you want pure seeds of the kind of vegetables you wish to grow; without these you cannot succeed. The gardener that has his ground properly prepared, with good seeds planted and up ready for cultivating, has made a beginning which he has only to follow up diligently to make a good crop.

But he must not allow the weeds to grow, or fail to stir the ground often. Many, very many, fail in not cultivating the soil enough. Some may read this who are thinking of engaging in the business, if so, I would advise them to consider some of the hardships they may expect to endure, such as being exposed to all kinds of weather, and working sixteen or eighteen hours of the twenty-four.

I wish that I could say something here that would induce my farmer friends to raise more vegetables for their own tables. How many farmers have side hills lying to the east, where peas and beans might be raised just as early as any vegetable gardener can raise them; also sweet corn? Then, without glass, he might make a box, six by twelve feet, and put in ten inches of horse manure, properly prepared, with eight inches of good loam on top of the manure, and cover at night if necessary. This would furnish one family with radishes several days before they can be raised in the garden.

I have kept radishes in these boxes through the last cold spell of March 19th and 20th, without glass on them, when my thermometer went twelve degrees below freezing.

Or take the south side of it, fence and manure well; spade it up deep in the fall and sow in the spring as soon as the frost is out. For early cucumbers take one-half of a flour barrel, and fill two-thirds full of horse manure, tramp it well, and fill the other third with loam; put it on the south side of a building, or fence, and water freely and they will yield abundantly.

NATURE AND ORIGIN OF SOILS.

BY DR. A. JEWETT, DAYTON, OHIO.

Read before Montgomery County, Ohio, Hort. Society.

It will be my object on this occasion to present a few remarks explaining, in the simplest manner that I can, the nature and origin of soils.

Soils differ widely in their immediate origin, in their physical characters, in chemical constitution, and in agricultural capabilities; but all soils capable of producing profitable crops possess two common characteristics. First, they all contain organic matter in greater or less proportion, and secondly, they all contain ten or twelve inorganic elements.

Soils are derived from the disintegration of the various rocks forming the earth's crust. A soil may be derived directly from the rocks on which it rests, or it may have been transported by water or other means from a great distance.

It may be so thin as scarcely to cover the underlying rock, or it may have gradually accumulated till it acquires a thickness of even hundreds of feet. Where a soil lies in a thin stratum on a level bed of rock, we should expect to find it composed chiefly of the components of the underlying rock; but where it has been transported from a distance, it may not correspond with the rock upon which it rests, but its origin may, perhaps, be found hundreds of miles away.

The proportion of organic matter in soils capable of bearing profitable crops, varies from one to seventy per cent. of the whole weight of the soil after it has been carefully dried. With less than one-half per cent. of organic matter a soil will scarcely support vegetation at all. It is only in peaty and boggy soils that the organic matter ever amounts to the very large percentage mentioned above. Sometimes such soils contain even more than seventy per cent., but whenever there is this excessive amount of organic matter it requires admixture of inorganic, or earthy matter, to make a good tillable soil. Oats and rye may be raised in soil containing only one or two per cent. of organic matter; barley requires two or three per cent.; and our best wheat lands do not contain on an average, more than from four to six per cent. of organic matter.

The organic matter consists partly of decomposed animal substances, but chiefly of decayed vegetable substances. That portion which is of vegetable origin will be found on examination to consist partly of brown fibres still bearing some of the characteristics of the original plant from which it was derived; partly of dark brown particles, and not infrequently the organic matter will be found to consist of nearly colorless compounds, soluble more or less completely in water. Even in soils apparently consisting entirely of sand or chalk these forms of organic matter may sometimes still be detected in considerable quantities.

The organic matter consists first, of humus—the name given to the fine brown powder which gives to garden soils and vegetable moulds their fertility, and which is formed by the gradual decay of vegetable matter; second, of humic acid; and third, of ulmic acid—two organic acids which are formed during the decay of vegetable matter, and exist in the soil in combination with lime, alumina, or magnesia, forming humates and ulmates of these bases. These humates and ulmates when exposed to the air, are gradually decomposed, giving off carbonic acid gas, and are converted into carbonates; fourth, crenic acid, and fifth, apocrenic acid, which are formed in a similar manner with the humic and ulmic acids, and like them are combined with lime, alumina, and other bases.

Malic and acetic acids are thus formed; and probably many other similar compounds are formed in the soil and minister directly to the growth of plants.

Thus much in regard to the organic compounds found in soils. It is not necessary, nor would the limits of such an essay allow me to attempt to enter into a description of the methods of determining their presence or their amount.

While organic matter is thus a necessary constituent of all fertile soils, it must be borne in mind that the inorganic constituents are no less necessary to perfect plant growth. For this reason we may have two soils, alike in physical properties and location, and both having nearly the same percentage of organic matter, and still one may be fertile, producing good crops, and the other be nearly sterile, simply because in the one *all* the necessary *inorganic* elements are present, while some of them are wanting in the other. These inorganic components, like the organic, may vary greatly in quantity in different soils and still be there in sufficient amount to answer all requirements of plant life—their average amount being perhaps about ninety-five per cent. of the whole weight of the soil when freed from moisture.

From numerous analyses of the ashes of plants, it has been fully established that some ten or twelve different inorganic elements are always present, viz.: Potassium, sodium, calcium, magnesium, aluminium, iron, mangane e, silicon, sulphur, phosphorus, chlorine, and oxygen—never in their simple form, but always in combination, forming definite compounds. Now these inorganic elements are derived directly from the soil, and hence the soil must contain them, and its fertility will depend, among other circumstances, upon its ability to supply, readily and in sufficient quantity, all these necessary inorganic elements.

The absence of any one of them would make the soil incapable of producing crops. Some of these elements may be present in such small quantities as to be entirely overlooked in a hasty analysis, and still be present in quantities sufficient for the growth and nutrition of plants.

Thus if in every thousand grains of soil there exists only seven hundredths of a grain of gypsum or sulphate of lime, it would require a careful analysis to detect this minute quantity—and yet this seven hundredths of a grain to a thousand grains of soil would amount to about two hundred weight to the acre, where the soil is one foot deep—a large quantity in the aggregate, although so small in the amount usually operated upon in a chemical analysis. Phosphoric acid is very much more difficult of detection than gypsum, and may be present in a much smaller quantity and still be present in quantities sufficient to supply all the wants of plants.

The failure to detect these minute quantities in the sample operated upon, may, perhaps, explain the very unlike results which have frequently followed the application of a given fertilizer—results so unlike and apparently contradictory as to cause many to lose all reliance upon soil analysis. I would not be understood, however, as claiming that soil analysis will in the present state of science always show *why* a given soil will not produce good crops; but in most instances an analysis carefully made will show wherein the soil is deficient, and knowing what is deficient, we know what to add to make the soil complete and capable of producing good crops.

The earthy part of the soil, though containing some twelve different constituents, consists chiefly of three ingredients, viz.: First, lime, mostly in combination with carbonic acid, forming sometimes chalk, and sometimes our common limestone, which may exist of all degrees of fineness. Second, silica, or flint. This, like the lime, is found of all degrees of fineness; and third, alumina, or oxide of aluminium. Alumina rarely occurs as simple alumina, but is generally found in combination with silica forming silicate of alumina, or clay; and this combination of alumina is also the base of slate and slaty rocks, and it further enters largely into the composition of most rocks.

We never meet with a tillable soil formed exclusively of only one of the three chief ingredients mentioned above; but in common language, soils are called *sandy* where silicious sand largely predominates—*calcareous* where, as in our limestone districts, carbonate of lime is found in large quantities, and *clayey* when silicate of alumina predominates. The clays are of greater or less tenacity, in proportion as the silicate of alumina is more or less free from admixture with other substances.

I look upon agricultural chemistry as one of the most important branches of chemical science, though I am sorry to be obliged to own that I have as yet studied it comparatively little, and have instituted no special investigations of my own. This, I trust, will be kindly accepted as sufficient apology for whatever lack there is of originality in this brief essay. But if I shall have succeeded in directing increased attention to an important subject, my object will have been accomplished.

WINTER KILLING OF EVERGREENS.

BY ALEXANDER NEWETT, GARDENER TO H. P. M'KEAN, ESQ, GERMANTOWN, PHILA.

(Address to the Germantown Horticultural Society, July 8th, 1873.)

MR. CHAIRMAN, LADIES AND GENTLEMEN—The few remarks I have to make on this subject are the result of my own observations—I have no theory.

It is necessary before asserting my own convictions, to examine the generally received theories or opinions of others. In doing so I disclaim putting forward any assertion merely for the novelty of the thing.

Let us suppose a number of evergreens, such as Norways, hemlocks, or any of our hardy evergreens, placed in all respects exactly alike. Some have been killed outright, others scorched or half killed, while others remain as green and beautiful as ever. These are not mere suppositions; they are realities which any of my hearers who feel interested (and who are not) in the preservation of our evergreens, the beautifying of our homes, can see for themselves. Now, I ask, if any be winter killed, why are not all? They are all equally hardy—why are they not *all* killed? Surely there must be some predisposing cause. What is it?

In the month of May, 1871, (which was the summer before the terrible so called winter killing took place), my attention was first attracted by the yellow appearance of a very beautiful hemlock hedge on Fernhill; this yellow appeared in large patches, some parts still retaining their natural green. On close examination I found myriads of red spiders all over these yellow patches, and also extending their depredations to the green parts remaining. I was in great tribulation; I scarcely knew what to do;

the hedge was gone almost too far for recovery. At first I thought that I had unwittingly been the cause of the misfortune myself, in having placed a number of plants from the greenhouse in close proximity to the hedge, though not by any means touching it. But after a little I felt somewhat relieved of my responsibility in the matter on finding that a large number of my immediate neighbors were suffering from the same cause, and they did not place any plants, or what amounts to the same thing, had no plants to place near their trees. One of them, a gentleman living close by, cut off the top of a very handsome Norway and brought it to me for inspection, saying: "Mr. Newett, what is the matter with my Norways? they are all going in this way." I took the piece from his hand; there was scarcely a leaf left, and those that were, were merely held on by the little webs of the red spider. A few of these also remained to prove my position.

Well, I took this gentleman to the aforementioned hedge (first having shown him the cause of the death of his Norway) and showed it to him, and explained my treatment. I don't know if he ever followed my advice; but one thing I do know, the great majority of his trees were then killed, and when the following spring arrived he was obliged to have a great lot of fine specimens, together with a very nice and well-established hemlock hedge rooted out and cast into the fire. It may be that this gentleman believes in the winter-killing theory; but I believe I can confidently assert that every tree he lost was summer-killed, or more properly, killed by the red spider, for I examined them all.

Every experienced gardener, I presume, knows from his own observation, if not otherwise, that the red spider thrives and multiplies prodigiously in a hot and dry atmosphere; the opposite of this is detrimental to him; he cannot live in a damp atmosphere. Therefore it is not hard to find out a remedy. In my case I had the hedge copiously syringed three or four times a week, always in the evening, with water from the hydrant. I saved the hedge by this treatment. It does not look as well as formerly, but I feel quite confident I saved it by the treatment I have described.

But prevention is better than cure; and this reminds me. I have often asked, when seeing people having their pavements washed off by means of a piece of hose with a nozzle attached, why they would not have the dear trees washed off also. If, on the approach of dry weather, the evergreens get a portion of the water usually used on the pavements sprinkled evenly all over them, say two or three evenings in the week, they will fully repay for all the trouble, by the bright green dress they'll wear, and I feel confident in asserting they never will rust or be winter killed.

If by pursuing the mode of treatment I have indicated any of my hearers save their evergreens, I shall feel a hundredfold rewarded for the little trouble I have taken.

Mr. Newitt illustrated his remarks by showing some branches of hemlock and Norway spruce in various stages of consumption (so to speak) by the pestilent red spider, presenting the appearance so familiar to our hedges.

[This address of Mr. Newett's we heartily commend to the readers of the *Gardener's Monthly*. Our readers are familiar with the fact that *anything* which half kills a tree in summer, renders it an easy prey to cold in winter; and how well *one* of these great summer injuries is represented by the red spider, Mr. Newett conclusively shows.—ED.]

GAS TAR IN GREENHOUSES.

BY BURROW & WOOD, FISHKILL, N. Y.

Noticing in *Monthly* for May, an article by Mr. W. Bennett, Gardener to G. Brewer, Esq., of Newport, R. I., "On the injurious effects of tar on plants when used on the stages of plant-houses," we would state that we have put up in the last four years, nine houses, from 50 to 80 feet long, and containing 7000 feet of staging, and are filled the year round with the different varieties of greenhouse, bedding and stove plants, ferns, &c; also used for forcing the strawberry, and for rooting all of our hardy and tender cuttings, and have never seen the least injurious effects, although in the winter of '71 and '72, we finished up a house 80 by 20 feet, gave the staging two heavy coats of tar, put on two inches of sand, and filled the house with almost every variety of bedding and hard wooded plants. Also filled one table 4x40 feet with tender cuttings inside of ten days after the taring was finished, and our success was complete, although the table was boxed up tight with three four-inch pipes underneath, with one of Hitching's boilers working on them night and day.

Mr. Bennett does not state what kind of tar

he used, but presume it was gas tar. Ours was not. Put it on cold, and find it a very great saving to the woodwork, although it probably would preserve the wood better by applying it hot. We think the trouble with Mr. Bennett's plants is the fumes from the tar spilt on the pipes, or a gas leak from his boiler or flue—either would soon leave his plants barren and unhealthy.

INSECT AGENCY IN FLOWERS.

BY THOMAS MEEHAN.

I am of opinion that art has not so much to do with garden variations as is generally supposed; that variations in nature are as great as in horticulture; and that the florist's credit is chiefly due in preserving the form which unassisted nature has provided for him. It was at one time part of the essential idea of a species that it would reproduce itself. If any variation occurred in nature, it was taken for granted that seedlings from this variation would revert to the parent form. But it is now known that the most marked peculiarity in variation can be reproduced in the progeny, if care be taken to provide against fertilization by another form. Thus, the blood-leaved variety of the English Beech will produce blood-leaved Beeches; and, as I have myself found by experiment, the very pendulous Peach produces from seed plants as fully weeping as its parent; and when the double-blossomed Peaches bear fruit, as they sometimes do, I have it on the authority of a careful friend, that the progeny is double-blossomed as its parent was. But I need not refer particularly to this. Any intelligent florist of the present age can testify to the fact, that varieties will reproduce themselves as fully as the original forms from whence they sprung. I do not think botanists, as such, are so fully aware of these facts as florists are. They scarcely admit of much inherent variation in form in nature; but look rather to hybridization, and insect agency in connection therewith, to account for such changes when they occur. In order to avoid the possibility of these agencies acting as the sole factors in evolution, I have generally taken a genus consisting of only one species in a given locality, to show how great is the variation in form, where no congenital species could mix with it. I have, for this, chosen Epigæa repens, Chrysanthemum leucanthemum, and the Quercus neo-mexicana (Q. Gunnissonii?) of the Rocky Mountains. Another familiar plant to illustrate this is the common yellow toad Flax (Linaria vulgaris). In a handful of specimens gathered in an afternoon's walk, I have found some marked variations, differing from each other almost as much as species do. In regard to the spur, which is generally as long as the main portion of the corolla, some had them only one-third or one-fourth as long; and in one instance the plant bore flowers entirely spurless. Dr. Darrach informs me that he believes he has, in years past, gathered a spurless form, but has neglected to place it on record. Then some plants had flowers with spurs thick, and others with narrow ones; and while some had spurs quite straight, others curved so as to describe nearly the half of a circle.

Now this Linaria is an introduced weed, with nothing allied to it anywhere in the localities where we usually find it, with which it can possibly hybridize. The variations must be from some natural law of evolution inherent in the plant itself. Varieties of course may cross-fertilize as well as species; and some of these variations may be owing to one form fertilizing another form; but there can be no avoiding the fact, that at least the first pair of varying forms must have originated by simple evolution. Now, going back to our florists' experience, the question occurs, that as varieties once evolved will reproduce themselves from seed, why does not some one of these Linarias, which has been struck off into some distinct mould, reproduce itself from seed, and establish, in a state of nature, a new race, as it would do under the florist's care? Why, for instance, is there not a spurless race? It is scarcely probable that the solitary plant, found on this afternoon's walk, is the only one ever produced. Dr. Darrach's recollection shows it is not a solitary case. The humble bee furnishes the answer. They, so far as I have been able to see, are the only insects which visit these flowers. They seem very fond of them, and enter regularly at the mouth, and stretch down deep into the spur for the sweets gathered there. The pollen is collected on the thorax, and of course is carried to the next flower. The florist, to "fix" the form, carefully isolates the plant; but in the wild state a spurless form has no chance, the bee from the neighboring flower of course fertilizing it with the pollen from any of the other forms. If there were no bees, no agency whatever for cross fertilization, nothing but the plant's own pollen to depend on, there would undoubtedly be races of

this Linaria, which, again, by natural evolution at times changing, would produce other races; and in time the difference might be as great as to be even thought generic. But we see that by the agency of the humble bee the progress of the newly evolved form is checked. The pollen of the original form is again introduced to the offspring, and it is brought back at least half a degree to its starting point. Insects, in their fertilizing agencies, are not always abettors, but rather at times conservators of advancing evolution.

[Since the above was published in the Proceedings of Academy of Natural Sciences, the author finds that Prof. Asa Gray had previously pointed out in *Silliman's Journal* that insects must often act as retarders of evolution —ED.]

THE CULTURE OF FERNS.

BY THOS. T. WEBB, GARDENER TO A. C. GIBSON, ESQ., OAK LANE, PHILA.

Ferns are propagated either by sowing the seeds or by dividing the plants; when the latter mode is adopted it is best to turn them out of pots and shake as much soil from their roots as possible. Such Ferns as have creeping rhizomes are readily propagated by dividing them so that each portion wanted for a plant, has one or more fronds and some roots in a healthy condition. They should at once be potted in pots as small as possible, in a compost of fibry loam, lumpy peat, well mixed with river sand, then placed in a cool moist frame and shaded well until established. The spring season, just when about to start into growth is the best time to propagate them, although it may, with many sorts be done safely with a little extra care at any time. Some sorts produce miniature plants on their fronds. These should be pegged down in a pot filled with the proper soil and placed near to the parent plant so that the frond to be propagated from will remain attached to it. When they have formed roots and pushed up new fronds, they can be cut from the parent plant and potted in two or three inch pots, watered overhead, and put in a warm shady place. Some kinds form young plants so strong that they can at once be removed from the parent plant and potted. The most interesting mode of propagation is by the seed. Most kinds will germinate in a moderate heat, and sufficient moisture.

Ferns from cold climates will require only a cold close frame or pit, with protection from frost. Species from temperate regions will do well in an ordinary greenhouse, and the tropical species in a hothouse. The most convenient and best way to raise seedlings I find is to fill some shallow pans with broken crocks or small pieces of sandstone; then with a compost of turfy peat soil, mellow loam, spagnum moss cut up short, and sandstone broken to the size of peas, well mixed and not pressed too firmly in the pans; then take a frond of the sort to be propagated and brush over a sheet of paper, (white is best) the dust-like seed to be thinly scattered over the soil; then cover with a flat piece of glass, fitting to the pans, placing them in larger pans and these fill with water; then place them in a cold frame in the greenhouse or hothouse, as may best suit the sorts. A warm shady part of the hothouse will, however, be the best place for many of the exotic varieties. As soon as the seeds commence to germinate, small green scales will appear on the surface of the soil. Water liberally and keep the plants covered with the glasses until two or more fronds show themselves; then the glasses must be tilted on one side for a short time every day, and gradually removed altogether. After two or three weeks they may be taken up and carefully separated and potted singly in small pots. They should then be placed under hand-glasses until established.

All ferns require a light open soil. The best I find for either hothouse or greenhouse varieties is fibrous sandy peat two parts—one part of turfy loam, leaf mould and plenty of sand. Green Fly and Thrip will sometimes appear on them. Fumigating with tobacco will exterminate the former; the latter, however, will not be got rid of quite so readily, and care must be taken that the fronds do not get injured during the operation, more particularly such as the old favorite Adiantum cuneatum, whose fine young fronds are liable to be injured by fumigation. To be successful in the cultivation of these favorites, a humid atmosphere must at all times during the growing season be maintained. I freely syringe two or three times daily, and well sprinkle the floor and stands. The Gymnogramma class must never be watered overhead; they will do best in a moist high temperature, during the growing season from March till the latter part of October, they should then be removed to the warmest and dryest part of the hothouse, and rather sparingly watered during the winter months. Small plants of the gold and silver va-

rieties do best placed upon shelves during those months, taking care to keep the fronds perfectly dry.

Ferns of most kinds do much better standing upon a somewhat moist bottom of gravel, spent bark or ashes. In summer allow a free circulation of air, and aim at keeping the temperature low and as much moisture in the atmosphere as possible. *Sunshine should never be allowed* on the growing plants Ferns in pots should always be well drained to about one-fourth of their depth, then a thin layer of spagnum moss, then lay a little of the prepared soil upon the moss; lay out the roots carefully, filling in the soil and work well among the roots until the pot is filled within one inch of the top, taking care that the soil is neither too wet or too dry. From the end of March until May the general potting up may be done. Small plants in a vigorous growing state, may require another shift about the end of July. If the soil is not sour, and the pot very full of roots, do not re-pot, for the less the roots of ferns are disturbed the better. *Dryness at the roots* is death to many of the fronds if not to the entire plant, and if once allowed to droop from want of water, very few of them will ever recover their vigor. If on the other hand a continuation of dull, damp weather prevails, they will, of course, not require so much water to the roots or syringing the fronds. Soft, or at least water somewhat aerated, should always be used, taking care that only very clear water is used for syringing, or the plants will soon have a dirty appearance. If any sign of mouldiness appears, give more air and less moisture in the atmosphere till that is checked.

The following are a few good free-growing greenhouse ferns that can be easily managed by any lady or gentleman not keeping a professional gardener: Adiantum cuneatum, Brasiliense, assimile, formosum, pubescens, setulosum, capillus veneris, Alsophila australis, a very fine tree fern of rapid growth; Asplenium bulbiferum; Cibotium regale, a handsome tree fern; Cyathea medularis, also a tree fern; Cyrtomium falcatum, Davallia canariensis, hare's foot fern; bullata, squirrel's foot fern; pyxidata, Doodia aspera, cordata, Lastrea patens, Lastrea Sieboldii, Lomaria Gibba, tree fern; Lomaria Gibba crispa, Lygodium scandens, climbing fern; Nephrodium molle, Nephrodium molle coryarbiferum, Nephrolepsis exaltata, a very fine graceful growing fern, good for pot specimens or basket culture; Nephobolus lingua, Oncychium japonicum, Polypodium cambricum, Phlibodium aureum, a strong grower; Pteris argyrea, cretica albo lineata, geranifolia, hastata, serrulata, serrulata cristata, tremula, fine specimen fern; Woodwardia radicans, to which might be added a few Lycopodiums, such as Selaginella denticulata, Wildenovii, densa, and involvens. There are a host of others, but these would be a good start in fern culture for a beginner to grow well.

An out door fernery could be made to occupy any dark shady nook or corner, however ill adapted for the growth of flowers or shrubs. Ferns could be made to luxuriate with little expense or trouble if under large trees, or to hide unsightly fences, walls, or other objects, nothing will suit so well as to place a few loads of soil and rubbish of almost any description, where the intended rockery is to be made, then take pieces of natural rock of any description, or in lieu, stumps of trees, brick rubbish, or cinders from furnaces, and place in and upon the soil, and made to have a pleasing effect, and to appear as natural as possible. If near water, so much the better, the ferns would grow finer assisted by the evaporation, giving the moisture so necessary to the well growing of them; they would of course be firmly planted in the crevices between the pieces of rock or stumps. If a little proper fern soil specified above could be used in the planting, so much the better for the plants—it would be an assistance at starting. A few Geraniums, Fuchsias, Sedums, Saxifragas, Verbenas, Vincas, and other subjects could also be introduced amongst the ferns in some situations, and make a lively contrast with the green of the others.

TREES INJURED BY LAST WINTER.

BY E. MANNING, HARRISBURG, FRANKLIN COUNTY, OHIO.

Another winter is past and another summer has come, and as the past winter has been the hardest in this locality since the hard ones of '55 and '56, I have taken my pen in hand to tell you of its effects on trees and shrubs on my lawn:

Pinus Austriaca, strobus, sylvestris, laricio and Pyrenaica, all uninjured. Newer varieties, P. excelsa, cembra, and Benthamiana also uninjured. Of the Firs, Picea balsamea, uninjured; pectinata, smartly injured; picta, Parsonsiana, casiocarpa, uninjured; Nordmaniana, slightly browned and half the buds or more

are injured so as not to grow—the top buds on the main leaders have not yet started; nobilis also somewhat injured; grandis somewhat browned, otherwise uninjured; pinsapo, considerably injured.

Abies excelsa, nigra, cœrulea, Whitmanina, archangelica, Menziesii, uninjured; alba, all uninjured; morinda, slightly injured; orientalis, slightly browned, otherwise uninjured; Juniperus Virginiana, suecea, glauca, Japan, glauca Virginiana, variegata, squamata, alpina, all uninjured; excelsa, considerably, but not fatally injured, also oblonga pendula, Mahonia Japonica, and intermediates, killed to the ground; Yuccas, two varieties, uninjured; Rhododendrons, all fatally injured.

Buxus, upright, killed; aurea, injured; lance leaved, injured; Fortuni, killed; latifolia and arborescens, slightly injured on upland—killed on lowland; Cephalotaxus Fortuni, slightly injured; Taxus aurea and adpressa, both killed; Thuja aurea, Siberian and Rosedale, all uninjured. Cupressus Lawsoniana, a tree of fifteen feet high, somewhat injured on upland—a small one on lowland killed.

Torreya nucifera, fatally injured; Retinospora aurea, a small plant killed; Magnolia acuminata, auriculata, glauca, tripetala, all uninjured; Alexandrina, conspicua, superba, Soulangeana, longifolia, Lenna, triumphans, albo spectabilis, gracilis, purpurea, all had their flower buds partly killed; Salisburia adiantifolia and laciniata macrophylla, uninjured; Liriodendron or tulip tree uninjured. Also uninjured, Tilia argentea, Virgilia, Populus alba, Betula laciniata, pendula, alba, Alnus imperialis laciniata, Glyptostrobus sinensis, Sorbus or Mountain Ash, Acer platanoides, laciniata or Eagle's claw, Taxodium distichum, Catalpa syringafolia, Negunda violacea, Salix "Kilmarnock Weeping," Fraxinus aucubœfolia. Injured—Catalpa Kœmpferi, Laburnum Killed—Fraxinus lentiocifolia pendula, ornus, Europæus, macrophylla.

Shrubs uninjured—Exochordia grandiflora, Rhus cotinus, Eleagnus angustifolius, Loniceras in varieties, Pyrus aria flowering Hawthorns. Slightly injured—Wiegelias of different varieties, Viburnum plicatum, macrocephalum, Spirea prunifolia and Reevesii; Deutzia, double flowering, white and purple killed to the ground; also Forsythia viridissima.

Of Vines—Bignonia radicans, slightly injured; grandiflora and Thunbergia, badly injured; Ampelopsis hederacea, uninjured; bipinnata, killed to the ground; Lonicera Halliana and flexuosa slightly injured; Belgica, killed; Peripoca græca uninjured.

There are many more of the commoner varieties I have omitted to mention, which are mostly uninjured. Nearly all of my evergreen and deciduous trees were mulched, or I think the destruction would have been worse.

June 16th, 1873.

HOW TO GROW EVERGREENS FROM SEED.

BY J. C. WOOD, FISHKILL, N. Y.

(*Continued.*)

The second year I find but little to do except to keep them clear of weeds by an occasional hand weeding; but we find this takes but little time where beds have been kept thoroughly clean the first season after sowing. I never shade my seedlings the second season—find they are sufficiently hardy to stand the sun without any further protection. In spring of third season, usually as soon as I can get to it, which is with me from first of May to first of June, or as soon as I can get my deciduous stock out of the way, I transplant into beds five feet wide, and any desired length, according to plat intended for the purpose; but before so doing, the ground receives a thorough preparation about as follows: In the first place the piece receives a very thorough plowing the fall previous, and as soon as the ground gets in good working order in the spring, I apply a very nice dressing of thoroughly rotted manure, prepared a year ahead if possible, after which it receives another thorough plowing and harrowing, which is supposed to leave it in very fine condition. Then I proceed to lay out my plat in the following way: Commencing at one side, allowing eighteen inches for path; then measure two and a half feet; then stick up laths, one at each end of plat; then again measure six and a half feet, and again place laths at each end as before, and continuing on in the same way measuring six and a half feet and planting laths until I have as many beds as I desire, after which, with the heavy plow, again I turn a back furrow up to each row of laths, until the dead furrow comes just about mid-way between them—usually four furrows on each side will answer; then I rake from centre each way to dead furrow until the ground is level again. The raking, I find, is not a very expensive piece of work, as the ground is

very mellow and loose, and I use the common wooden hay rake for the purpose, as it works more readily through the soil, and the work can be performed much faster than with the iron rake, and good enough for the purpose. Now my ground being all ready, I stretch my line the whole length of plat, leaving eighteen inches for path, then tighten up firmly, for I like to have the sides of my beds straight, then I lay my board down directly across one end of the bed, and at right angle with the line; bring an end which is sawed square right along the line. Here let me add, the board I use to plant most kinds of stock by is just five feet long and seven inches wide, sawed square at both ends. I find this a convenient length, and about the right width for most kinds of plants. After the board is placed in position, a boy is placed at each end, each armed with a light spade. Each boy brings his spade down on the board with two or three good sharp raps, after which they proceed to open a perpendicular trench right along the edge of board, four or five inches deep, according to size of plants intended to be planted, after which each boy proceeds to plant.

The plants having previously been prepared in the packing sheds by sorting, sizeing and pruning—the latter pretty thoroughly, especially the tops, as I find my success is very much increased by a pretty severe shortening in of top and side shoots, and at the same time helps to improve the plants by making them branch more thick and stocky. After thus prepared, they are packed very nicely in small boxes, such as glass or soap boxes, and thoroughly wet and covered up with some old cloth or mats, then each gang of two boys is thus provided each with a box of plants, which we are very particular to have kept covered up except when they are getting out a handful for planting, the size of which is regulated according to weather. When warm and dry, we take out only a small handful at a time; when moist more. Commencing at each end of board, the planters proceed by holding one plant in one hand and hauling just enough soil with the other to cover the roots, and pressed down firmly at the same time until the middle of board is reached, or until the planters meet. The distance apart is regulated somewhat according to size and kinds of stock I am handling—usually from thirty to fifty in a row. Spruce, Norway, two year seedlings, thirty-five to forty plants; Arborvitæ, American, say forty to fifty; the stronger growing Pines, thirty to thirty-five plants. After the first row is planted, the soil is hauled back to its place and around the plants until the ground is level again. Then we use a duplicate border, just the same as the first one, which is planted right down in part of the row just planted, the edge being brought up snug to it, being particular to bring one square end right along the line every time, and again it is settled into the ground by a few sharp raps with the spade as before, and another trench is opened and planted. Then the first board is taken up and moved just ahead of the second, and so on as the operation proceeds.

The object in using two instead of one board is, where I use but one board in forming the ground after planting a row, the plants are all driven to one side, but where two boards are used, the plants all remain perpendicular in their places. I place a good deal of importance on packing the ground very firmly, particularly if the ground is getting a little dry. If wet, of course I do not pack so hard. I use boys from 14 to 17 years old altogether for this kind of work. I find they can perform the operation just about as fast as men, and by studied watching just as good, whereas their wages is only about half as much, and most boys will learn it very quick—a half-day is sufficient to get him so he can plant quite as well and nearly as fast as a more experienced hand. I consider for two boys that have had a little experience, 10,000 plants a day's work. However, there is a difference in boys, some can adapt themselves to it much quicker than others, and at the same time plant much faster. Some of my more experienced hands will plant 15,000 in a day, and do it well—that is the gang of two boys, 7500 each. I find where I am particular in handling, that in not allowing the plants to dry, my loss is very small, often not more than one per cent. Still the season of 1873 is an exception, as we had no rain from middle of April to middle of July. Frequently the wind almost blew a gale from West and Southwest, with bright sun—mercury often standing 90° in the shade, which, of course, made it almost impossible to keep life in anything. My loss was quite heavy—say twenty-five per cent.; and those that did live are making only about half as much growth as they would have done had they had sufficient moisture.

With the exception of Larch and some of the stronger kinds of deciduous trees, I leave my

plants in these seed beds two years, when they are large enough for planting in nursery rows. In addition to spring planting, I have some seasons planted quite extensively the last week in August and the first two weeks of September, and if the weather is moist and cool, find it quite as safe as spring planting, except in the case of very small plants, which usually get throwed out most too much in spring with the frost, having but little root to hold them in. All small plants, when planted in the fall, should be covered in some way the first winter, either with leaves, evergreen boughs, or lath shades, so as to keep the ground frozen until the weather becomes settled in the spring.

RAISING SEEDLINGS OF TREES, FRUITS, &c.

BY J. M.

In your June number, "Horto," referring to an article of mine headed as above in the September number for 1871, wishes me to say how to obviate the seedlings being thrown out by frost the first winter. Wherever seedlings are exposed to freezing and thawing the first winter, or any time before the roots are lengthy, the most of them will be out of the ground in the spring "high and dry." They must be kept by some means from thawing after once frozen. Mere shade in winter is not enough. There must be a sufficient thickness of material over them to keep them frozen solid continually till spring, enough to prevent two or three days of warmth which we sometimes get in winter, from thawing them out. A thick litter of leaves with some heavier material on the top is first rate. "Horto" says: "mere covering with litter on the approach of the frost does not seem to be effectual." He probably has made the covering too light, and if he will "pile it on" thicker another season I think he will successfully winter them. I am glad that my former article was of use to him, and propose before the next seed sowing time comes to revise somewhat what I then wrote, and give the result of what I have since learned on the subject.

EDITORIAL NOTES.

FOREIGN.

Stigmaphyllon ciliatum. This is a free growing and abundant flowering p'ant, first introduced to our collections towards the end of of the last century, yet seldom to be found occupying the position it deserves. Its blooms are bright orange yellow produced in large umbels, whilst the cordate leaves are light green, and furnished at the edges with numerous eyelash-like hairs. The flowers, which at first sight resemble Orchid blooms, are produced for many months in succession. It should be potted in a mixture of about two parts loam, one part peat and leaf mould, and one part sand. Native of Brazil.

We find the above in the *Journal of Horticulture*, and copy it in order to remind our readers of what we said of it a couple of years ago, that it is one of the best possible plants for out-door gardening in America. It suits our hot climate and commences to flower in June, continuing till frost. Any florist who would take hold of it, and *push it*, would certainly give satisfaction to his customers, and bring in a good profit to himself.

Why Seed Grows so easily sometimes and in some countries, is yet a mystery. This is illustrated by a discussion going on in an English magazine between our Mr. Downing and the gardener at Fulton Park. Mr. D. had said that the seeds of the Buffalo Berry sown in spring will not grow till spring following. Mr. Muir, of Oulton, says Mr. Downing is wrong—his seeds sown in spring growing soon after. He says, however, his seeds grew at once, because he preserved the dried pulp on them; but we in America know that the best success follows cleaned seeds of trees as a general rule. The only ascertained facts are that seeds want darkness, air, and moisture to germinate well. These conditions are better secured by an English climate than an American, and hence a seed that takes a season to sprout here, may come up at once there.

Superfœtation. In reference to Mr. Arnold's interesting paper of last year, the following from the *Journal of Horticulture* will have an interest. It does not follow, however, that there must have been two distinct fertilizations in this pear case, as there certainly was in Mr. Arnold's corn experiment. If a pear were carefully fertilized with one flower, and all contact with other pollen prevented, still there would be no two fruits alike among the seedlings. At least it has been found so in other things, and we infer it would also be the case here:

"Whilst on the subject of Pears, I may mention what seems to me to be a subject of some interest as touching on seminal varieties. Some fifteen years since I noticed a fruit on a tree of the Seckle of three or four times the usual size, and I saved the pips, and raised two trees, which have now been bearing two or three years. The interesting point

to which I wish to call your attention is, that although both these trees were raised from the same fruit, they are completely different from each other in flavor and appearance. One is an enlarged Seckle rather coarse in flesh, but improves every year over the quality of the preceding one, and this year I hope to be able to speak of its quality double-worked on Quince, and grown in the orchard house. Hitherto it has only been grown as a standard in a locality where the original Seckle has never been anything better or larger than a small Crab. The other Pear is a medium-sized melting Pear of high flavor, ripe in October, having no resemblance to the Seckle whatever. The tree from which these two were raised grew in close proximity to a Beurre de Rance; but as other Pear trees were growing on the same wall, the blossom from which the fruit came may have been fertilized by the bees from some other tree. The singular thing, as it seems to me, is that there must have been two distinct fertilizations in the same blossom, as there is no resemblance in the leaf, mode of growth, appearance and quality of fruit, or in anything else between these two fruits raised from the same Pear."

Great Age of a Botanist. The Unitarian Congregation of Lowescroft in England, gave a party recently to Lady Smith, on the occasion of her *hundredth* birthday. Like her celebrated husband, Sir James Edward Smith, his widow is a botanist of considerable reputation.

Value of Orchidaceous Plants. The price our English friends are willing to pay for beautiful flowers, are indicated in the following extract from the *Garden*:

"Of Vanda cærulescens, a rare and beautiful blue-flowered kind, a considerable importation from Burmah was sold the other day at Stevens'. A mass of it, consisting of eleven strong plants, realized £20. Of Vanda Denisoniana, another rare species from the same district, six plants fetched £11, and Dendrobium thyrsiflorum, a fine showy species, fetched £13 13s. The whole amount realized for 443 lots was a little over £889."

The Hardiest of the Rarer Coniferæ. During the past quarter of a century many new coniferous plants have been introduced into England, and by this time they are enabled to judge what may be classed among the generally hardy. The Scottish Arboricultural Society has recently published a list of such, which we reproduce here, because it corresponds very much with American experience. All the alteration we should make would be to carry the remarks in connection with the Deodar Cedar to most of the others. We find most young evergreens in the Middle States, need shelter while young:

Name of Species.	*Remarks.*
Wellingtonia gigantea,	Universally vigorous.
Thujopsis borealis,	Very hardy.
" dolobrata,	Not in general cultivation
Thuja gigantea,	Very universally hardy
" Lobbii,	Not so generally grown
Cupressus Lawsoniana,	The hardiest of the Cupressus family
" Lambertiana,	Sometimes tarnished by winds
" Goveniana,	Generally stands well
Cedrus Deodara,	Requires care when young
" " robusta,	Better habit and leader than above-named var.
" Libani,	More adapted for England than for Scotland; thrives well in Ireland.
" atlantica,	Hardy
Abies Douglasii,	Worthy of extended cultivation.
" orientalis,	Ditto
" Menziesii,	Sometimes rather deficient in Scotland
" obovata,	Not generally grown
" Mertensiana,	Hardy
Picea nobilis,	Hardy in most situations
" cephalonica,	Sometimes suffers from spring frost
" Pinsapo,	Sometimes browned in spring
" bracteata,	Sometimes suffers from spring frost
" Nordmanniana,	Hardy in most places
" Balsamea,	Ditto
" canadensis,	Ditto
" Fraseri,	Ditto
" grandis,	Ditto
" Pichta,	Ditto
" Pindrow,	Ditto
" religiosa,	Sometimes injured by spring frosts
" rubra,	Hardy
" Webbiana,	Ditto
Pinus Laricio,	Worthy of general cultivation, and where rabbits abound.
" excelsa,	Sometimes doubtful
" Lambertiana,	Peculiar as to soil and district
" monticola,	Hardy
" ponderosa,	Ditto
" insignis,	Sometimes suffers from frost
" maritima or Pinaster,	Valuable for coast planting
" taurica,	Hardy
" Cembra,	Very hardy
" uncinata or Mugho	Hardy
" rigida	Ditto
" pyrenaica,	Very hardy
" austriaca,	Ditto
" Sabiniana,	Usually hardy
" Taeda,	Ditto
Taxodium sempervirens	Browned by spring winds in some situations, but thriving in many places

The Iris. It is the fate of many good plants to get set aside for novelties not near as good. The Iris has been one of these unfortunates. But it is growing again into favor in England. The varieties are very numerous, and there is no flower capable of giving more interest than a collection of these. They flower as the Hyacinth goes out, and are excellent plants to go together with them.

Best Hardy Spring Flowers. In America spring gardening has much more attractions than summer. The following list of spring blooming plants is by a correspondent of the *Garden*. Most of them can be had in American nurseries:

Adonis
  vernalis
Allium
  neapolitanum
  paradoxum
Alyssum
  alpestre
  montanum
  saxatile
Anchusa
  sempervirens
Androsace in var.
Anemone
  alpina
  apennina
  coronaria
  fulgens
  memorosa
  palmata
  patens
  pulsatilla
  ranunculoides
  stellata
  sulphurea
  sylvestris
  trifoliata
  vernalis
Antennaria
  dioica
Arabis
  albida
  arenosa
  blepharophylla
  petræa
  procurrens
  purpurea
Arenaria
  verna
Armeria
  vulgaris
Asperula
  odorata
Aubrietias, all kinds
Bellis in var.
Borago
  orientalis
Bryanthus
  erectus
Bulbocodium
  vernum
Caltha palustris plena
Centaurea
  cyanus
  montana
Cardamine
  trifolia
Cerastium in var.
Cheiranthus
  Cheiri
  Dilleni
  Marshallii
Chelidonium
  grandiflorum
  japonicum
Claytonia
  Virginica
Collinsias in var.
Collomia
  coccinea
Convallaria
  majalis
Corydalis
  bracteata
  lutea
  Marschalliana
  nobilis
  tuberosa
Crocus
  biflorus
  imperatonius
  luteus and vars.
  reticulatus
  Sieberi
  vernus and vars.
  versicolor
Cyclamen in var.
Delphinium
  nudicaule
Dentaria
  digitata
Dicentra
  eximia
  spectabilis
Doronicum
  caucasicum
  Clusei
  Columnæ
Dodecatheon, all kinds.
Draba in var.
Epimediums
Erodium hymenodes
Eranthis
  hyemalis
Erica
  herbacea
  carnea
  Mediterranea
Erysimum
  ochroleucum
Erythronium
  Dens-canis
Eschscholtias, all kinds
Ficaria
  grandiflora
Fritillaria, all kind
Galanthus
  nivalis
  plicatus
Gentiana
  acaulis
Gentiana
  verna
Helleborus, all kinds
Hepatica
  angulosa
  triloba
Hutchinsia
  alpina
Hyacinthus
  amethystinus
  orientalis
Iberis, all perennial kinds
Iris
  germanica
  nudicaulis
  pumila
  reticulata
  stylosa
Jeffersonia
  diphylla
Leucojum
  æstivum
  vernum
Limnanthes
  Douglasii
Lithospermum
  prostratum
Lunaria
  biennis
Malcolmia
  maritima
Meconopsis
  cambrica
Muscari, all kinds
Myosotis
  alpestris
  dissitiflora
  palustris
  sylvatica
Narcissus, all kinds
Nemophila, all kinds
Omphalodes
  Luciliæ
  verna
Orobus
  cyaneus
  flaccidus
  vernus
Petrocallis
  pyrenaica
Phlox
  divaricata
  procumbens
  reptans
  setacea
  subulata
Primula, many species
Pulmonaria, all kinds
Puschkinia,
  scilloides
Ramondia
  pyrenaica
Ranunculus
  aconitifolius
  acris
  alpestris
  amplexicaulis
  chærophyllus
  Gouani
  gramineus
  monspeliacus
  montanus
  spicatus
Sanguinaria
  Canadensis
Saponaria
  calabrica
Saxifraga, most kinds
Scilla
  amœna
  bifolia
  rosea
  Sibirica
Silene
  pendula
Sisyrinchium
  grandiflorum
Soldanella, all kinds
Stocks in var.
Stylophorum
  diphyllum
Stocks in variety
Thalictrum
  anemonoides
Thlaspi
  latifolium
Trientalis
  Europæa
Triteleia
  uniflora
Tulipa, all kinds
Uvularia
  grandiflora
Veronica
  pectinata
Vesicaria
  utriculata
Vinca in variety
Viola
  odorata
  suavis
  tricolor in variety
Waldsteinia
  geoides
  trifolia

Potatoes. One would think that potato culture ought soon to reach perfection. What with varieties and modes of culture there are this year growing in the Royal Horticultural Gardens at Chiswick, *four hundred* different lots, by way of experiment.

Failure of the California Mammoth Tree in Great Britain. At a meeting of the Botanical Society of Edinburgh, a few months ago, Mr.

McNab exhibited a section of a stem of *Sequoia gigantea*, which after reaching four feet seven inches in circumference since 1858, had died in 1872. He says there are none doing well in that part of the world, and he concludes that it is "constitutionally weak." In this country we find them almost universally attacked by a parasitic fungus in summer time; and we should not be surprised if this is not what is the matter with the British trees.

Beautifying Young Specimen Trees. When a young tree of a rare kind is set out on the lawn, it is often many years before it makes any great show. In England, a fashion is becoming prevalent to set some other plant round it for some years till it grows up to make a show for itself. These are mostly hardy herbaceous plants that know how to take care of themselves, and will yet make a good show, in spite of the roots of the young trees during the summer season.

Flowers in Cemeteries. A writer in the *Garden* commends the American practice of highly ornamenting and keeping up in good floral condition the resting places of the dead, and thinks it will be imitated in all English speaking lands. The projectors of Mount Auburn, at Boston, and Laurel Hill, at Philadelphia, may well feel proud of the general acceptance of their leading work.

Kaki. The following from the *Garden* has reference to the Japan Persimmons:

"At the present moment, imported fruit of the Japanese Kaki are offered for sale in the shop windows of MM. Cuvillier, et freres, marchands de comestibles, 16, Rue de la Paix, Paris. They have been apparently dried and prepared in the same manner as our dried Figs and Raisins. The fruit, in their dried state, are three inches or more in length, and are described as having a firm and slightly gelatinous substance, of a reddish-brown color, and sweet and agreeable to the taste. Many species of Kaki are cultivated in Japan, with fruit varying in dimensions from the size of a large fowl's egg to that of a man's fist. When fully ripe, they are said by M. Coignet to be dried in the sun and then preserved in flour, when they are equal to the best dried Figs. M. Carriere, however, states that whether from habit or not, he prefers the Figs."

Indian Rubber Packed Joints. We believe the practice now becoming prevalent in England of joining hot water pipes by an rubber band, instead of tow and red lead has not been referred to in the *Gardener's Monthly*. The following is from a correspondent of Mr. Robinson's *Garden:*

"Your correspondent's inquiry (see p. 302) respecting the fitness of india-rubber rings for jointing hot-water pipes merits more than a passing remark. My own experience, though small, has satisfied me that these rings make entirely water-tight joints, and are easily fixed, effecting a great saving of time, compared with the old-fashioned mode of packing with hemp and lead. The ring being drawn over the end of the pipe to be jointed, one man holds it steady while another pushes it into the socket, the ring rolling round and becoming flattened and perfectly water-tight as the pipe 'goes home.' When all the piping is fixed, a little wet Portland cement is run in round the joint with the fingers, and then the whole is complete. Some hot-water pipes fixed here were jointed with these rings, and the men who used them stated that they were greatly superior to the old packing method, which causes delay, and is not unfrequently productive of leaks and annoyance. It is, however, desirable to pack such joints as are within a few feet of the boiler, as the heat there is sometimes detrimental to the india-rubber rings."

EDITORIAL.

HISTORY OF THE CHERRY.

It is very remarkable that there should be so many cultivated plants, the early history of which, is absolutely unknown. Nations have passed away, languages have died, most probable, land which bore the originals of many of our fruits and vegetables, are now at the bottom of the sea; but the plants themselves, useful to man in all ages, have been taken with man in his migrations and handed down to us from ages past, far beyond the power of even the oldest tradition to say exactly when.

The Cherry is said to be a native of Europe and Asia; but its real original wild home is not known. Sometimes we think we can trace histories of these things by their names; but language varies so, even in our day, that we have no security from error in this mode of historic investigation. Many of us for instance, have been puzzled in our younger days to know why a cherry which rarely ripened where the name was best known before June, should be called the "May Duke;" and then some one tries to get us out of the scrape by saying that it was derived

from "Medoc," and the English took the French pronunciation and left the French orthography behind. It is not at all improbable that some ingenious historian will prove to our satisfaction some day, that the Modoc Indians and May Duke Cherry had one and the same origin! Who knows how far we are to believe ancient history in similar cases? We are, for instance, told that the Romans brought the cherry from Keresown, a town in Turkish Asia, and that therefore they gave it the name of *Cerasus*. It is said to have been brought by the Roman General Lucullus, on his return from the Mithradatic war. But we suspect it was pretty much in those days as it is in ours where great men frequently find things which were never lost, and bring things for the first time to countries where they have existed for years before. Thus we had in our country the great head of the Bureau of Agriculture sending to China to introduce a few tea plants into the Government Gardens at Washington, a few years ago; and we were confidentially told by a good friend lately, that he had sent to Africa for a few living coffee plants, so as to astonish the world with a sight of the growing trees at the great American Centennial in 1876! Our doubts about Lucullus bringing the first known cherry to Italy arise from the fact that in about twenty years after, as Pliny tells us, the cherry was well known all over Europe—even in "Britain, beyond the Ocean." We do not know how these ancient Britishers obtained their first stocks to graft the cherries on, or whether these half barbarians knew anything about grafting. If they had to depend on the seed, and if the seed did no better than our seed does, which usually degenerates to very poor "Mazzards," whatever this name may mean, for we have never been able to find out.

The Romans perhaps grafted. Pliny tells us they did. Notwithstanding the slow traveling of those days, grafts may have been successfully introduced from Pontus to Rome, and this would have given them some half a dozen years within the twenty to fruit a few, and send the stones to the wild English, who raised their trees from them. But the whole story is smoky, and in short, we are sorry to say, with all respect to the great Lucullus, and the great botanist Mithradates—Pliny, the historian, and all included, we don't believe it, and thus we cannot tell our readers that the "Cherry came to us from Asia *via* Rome," as the good books tell us; nor do we know where the cherry did spring from. Pliny wrote about one hundred years after the event, and we know how it is now. We can hardly trust a man to write an account of what happened a year before.

As before hinted, it is remarkable how the cherry degenerates when left to itself. Although our good friend Gray does not tell us so in his "Manual," the cherry is one of the commonist of wild or naturalized plants in Pennsylvania. There are thousands on thousands of wild trees through the State, and in some places the borders of woods in spring will be quite white with the blossoms of the cherry trees. These have no doubt, in the first instance, been carried from cultivated trees, and yet how rare is it to find one that will in any way compare with our fine garden fruit! In numberless cases there is little left of the cherry. A good sound stone it is true; but a little piece of red skin drawn over it, and the "fruit" little more acceptable than would be the red berries of the common dogwood. It would be a poor business for progressive development theories if they had to depend on facts like these. Still it is an interesting question, this of where the cherry came from, as it is as to where the other fruits and vegetables originated, and we are sorry we can not throw any light on it.

SCRAPS AND QUERIES.

PRUNING STREET TREES.—*M. Digram, Westchester, Pa.*, says: "The following extract from paper read before California Academy of Sciences, July, 1872, covers 'Chronicler's' case completely: 'Again it is frequently the case that the lower branches are trimmed off to a mischievous extent, which also is a mistake, for where a tree has sufficient space to grow in, but little trimming is necessary, and it is a false taste which seeks to improve (?) upon nature by depriving a tree of its normal physiognomy and distinctive character by carving it into grotesque or inappropriate shapes; it is simply mutilation, and is certain to result in premature de-

cay and death of the victim. The flattening of the head by certain aboriginal tribes, and the distorted feet of the fashionable Chinese ladies, are further and pertinent illustrations of analagous hideous violations of natural form.'"

WHITE PANSY.—*J. W. M., Utica, N. Y.:* "Herewith I send flower of a white Pansy that originated with me this season. What can you say of it?"

[Can say it is the best white we have seen so far. It is wholly white, except a *small* orange spot in the centre. There will yet be room for improvement in the form and texture of the petals, but until some one is more fortunate we should rank this as No. 1.]

A CAPITAL RIDDANCE.—The absence of the Editor who is examining the orchards of the Shenandoah, gathering wild flowers in Texas, and studying native timber trees in the Wahsatch and Rocky mountains, will sufficiently account for the superior excellence of the August and September numbers.

CULTIVATING DOUBLE ENGLISH PRIMROSES.—*X., St. Louis, Mo.*, writes: "When East, a few winters ago, I noticed that much use was made of the double white Primrose for bouquets. I purchased half a dozen plants, but they have now all died. They seem to get through the summer badly. What is the best way to cultivate them?"

With this query we find a full paper on the subject from the English *Gardener's Chronicle*, merely adding that the summer shade and shelter from rain, is of still more importance here:

"To give simple details of the cultivation of any single plant is to me an irksome task, for when I attempt it I have an innate feeling that my remarks may be read by those who are already acquainted with all I may write, and that those who are ignorant will not think them worth perusing beyond the first few lines. It must be understood then that these remarks are not addressed to the former class; on the contrary, I will canvass for converts amongst the latter—such as may have a desire to become successful in the cultivation of a beautiful and useful old plant.

"I believe the most difficult process in the culture of the Double Primula is its propagation, and after trying various ways of inducing it to root, I have found no plan better than the following: As soon as the plants have done flowering, place them in a temperature of 55° at night, with an advance of 10° by day. For want of a more suitable place, I recently put some in a temperature of 65° to 70° at night, but in this they got drawn. If any of the plants appear sickly and the growth insufficient to make cuttings from, they should be repotted, at the same time removing all the soil possible without injuring the roots; others will be benefitted by a top-dressing. In about six weeks from the time they are placed in the above temperature the cuttings will be ready, for though some may not be much larger than when placed there, they will be sufficiently excited. The whole plant should then be cut up, and every shoot that has half an inch of old brown wood attached to it, put in as a cutting. I have tried to keep old plants, but they have made only miserable objects compared with the yearly ones. The cuttings are inserted each into a thumb-pot, the mixture being peat with a sixth of loam, and a very liberal portion of sand; if the loam is light I use more of it. Each cutting will require a stake and a tie to support and steady it.

"The most suitable place for them now will be along the west edge of a Cucumber or a Melon frame newly planted. There they will have an increase of temperature, and will be surrounded with sufficient atmospheric moisture; at the same time they will receive sufficient air to keep them from damping; and they can be shaded if necessary without interfering with the more legitimate occupants of the frame. When sufficiently rooted they should be removed into an unheated frame, facing the north, and placed on ashes as a security against worms. They should be kept close for a few days, and gradually inured, so that they may ultimately have all the air possible. When sufficient roots are made to retain the soil together, they may be potted into 48's. I am not particular as to soil, relying more on its mechanical texture than on the relative quantity of the ingredients. Loam and peat in equal proportions will do when the former is friable. Leaf-mould may be substituted for peat, but above all things, I would insist upon a liberal allowance of silver sand being used. Porosity in the soil is of the utmost importance. The delicate silky roots are unable to penetrate a clammy compound, let its richness be ever so inviting. After they are newly potted, they will require shading for a few days during sunshine, and even after they are estab-

lished, a thin shading for an hour or two during the hottest part of the day will be beneficial, with an occasional sprinkling from the syringe or a fine rose in the evening, and the light may be left off at night when there is no probability of heavy rain. They will now make rapid progress, and some may fill their pots in time to have a shift into 32's; but I have not been able to get much larger plants in this size than in 48's. The only advantage I have found is, that they are later in flowering, and the individual flowers are generally more double, and certainly larger. In September, all depending on the weather, they may be removed into an airy house, the front of one where means are supplied for front ventilation. Excluding frost and guarding against damp will be the chief attention they will require, but, like the Chinese Primula, they are rather benefited than otherwise by a night temperature not below 40 degrees. In November they will be in full flower, and will continue so for four months or more.

"The reader of these few lines will now be ready to ask—What result may be expected from this apparent trouble, and what are the advantages of growing these when scores of plants of the Chinese Primula may be raised from a packet of seed? The result with me has been the possession of pyramids in 48 pots, from one foot to eighteen inches high, and the same across, and any one possessing suitable accommodation may attain still better results. They claim special advantages, inasmuch as they are useful for indoor decoration, the purple one especially; and possessing a pyramidal habit, they contrast favorably with the "squatty" appearance of seedlings. They are also useful for cutting from, and the flowers will remain fresh after being cut as well as most others. The individual flowers can be used for bouquets if they are wired; and, finally, on a pinch, they may come in for ladies' hair and also for gentlemen's button-holes."

LONICERA TARTARICA.—*B. J. B., near Cecilton, Md.*, writes: "I purchased by a description in a nursery catalogue, a plant called Lonicera tartarica, represented to be a honeysuckle, and planted it near a piece of lattice work, for it to run over but it does not run more than a lilac bush in my garden. Is this as it ought to be?"

[This is right. There is a class of Honeysuckles which grow as bushes, (*Lonicera* proper). The climbing ones (properly *Caprifoliums*), are the ones our correspondent thought she was to get. The upright Honeysuckles are very ornamental as bushes—the Tartarian especially so. There are two kinds, one with whitish flowers; the other with deep rosy pink. Again there is a variety with yellowish amber berries, and one with berries of a coral red. It is for these they are valued, and not for climbing purposes. For this you should order Japan, Chinese, Red, Scarlet Coral, or Belgian Monthly. It is to be regretted however, that nurserymen do not adopt the latin name *Caprifolium* for the climbing Honeysuckles, to avoid mistakes.]

HORTICULTURE IN THE COUNTRY.—A *Lancaster, Pa.*, correspondent gives a very encouraging account of horticulture in that city. New plants are much sought for, and every branch of gardening meets with encouragement.

BELLE MAGNIFIQUE CHERRY.—*J. T., Pittsburg, Pa.*, writes: "From accounts that I have seen, I have been desirous to possess the Belle Magnifique Cherry, and a few years ago procured trees of it from what I should regard as a perfectly reliable source. Now that they are in fruit, a gardener, who claims to have a knowledge of these things, asserts that it is but the Late Duke. Have I any claim on the nurseryman for disappointing me?"

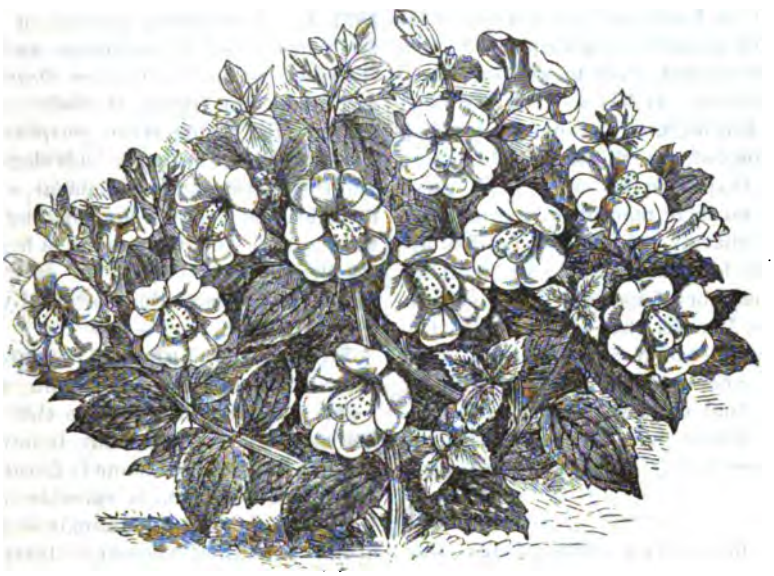
[Any person has a claim on another for disappointing him in anything; but in this cherry matter, "be sure you are right" will apply. We should doubt very much the judgment of the average man who should decide at once between Belle Magnifique and Late Duke, unless they were both growing near each other. Belle Magnifique has a slightly firmer flesh, and the fruit stalks are rather larger, otherwise the fruit, foliage and growth are about the same. At any rate you are not badly hurt, for we do not know in any respect that one has an advantage over the other.]

SEEDLING RASPBERRY FROM MR. PRICE.—This is a dark variety—same color as Philadelphia, but belongs to the Antwerp stock. The fruit is medium size, of good flavor, and evidently produced in great abundance. Its positive value will depend on comparison while growing together with the other kinds.

NEW AND RARE PLANTS.

MIMULUS CUPREUS, VARIETY "BRILLIANT."—There are few things more gay in the spring of the year than the various varieties of "monkey flower." They are besides, of very easy culture, if a few simple precautions are taken. The chief of this is to keep them from great heat. They like rich soil, and to be in the full light; and like moisture, but not to be soddened or wet. A saucer with water under the pot, is an excellent way to keep up this regular supply. There are many cool places about buildings and in greenhouses, just suited to it. In every other respect it is of easy culture.

OBSERVATIONS ON THE NEW WHITE ROSE, MADAME LACHARME.—What the reporters said about the new white hybrid perpetual rose, *Madame Lacharme*, having been shown in a pink dress at South Kensington, on the 2nd April last, was, literally speaking, true; plants were there exhibited by two persons, and the reporters said that the blooms were of a decided pink color. It is satisfactory to know that the rose in question is *white* when fully expanded. The rose is very distinct, and cannot be mistaken when once seen. The flowers open with a tint of rose or pink, but this color is on the back part



The variety we now illustrate is said to be a *scarlet*, which if so, will render it peculiarly desirable. Messrs. Carter say of it:

"An extremely showy half hardy plant, selected by us some years since from Mimulus Cupreus; it differs materially from the parent plant in being more compact in its habit and larger flowers; the color is totally distinct from *Cupreus*, and approximates to that of *King of Tom Thumb* Nasturtium, a brilliant deep scarlet. We feel confident this plant will receive extensive cultivation as a half-hardy annual; it is equally desirable for pot cultivation, rockeries, or for out-door bedding."

of the petals; as the blooms expand the petals reflex, and quite obscure the outside color; the flower when fully developed is *quite white*. This answers to the description given by Monsieur Lacharme, who says: "The rose Madame Lacharme is very vigorous, beautiful deep green foliage, majestic carriage, flowers very large, and very full; white, opening with a very slight tinge of rose, when fully expanded passing to pure white; Centifolia form, very perpetual; the best hybrid white yet produced; a seedling from Jules Margottin." The description given by the raiser is faithful. The plants exhibited by Mr. W. Paul and Mr. H. Bennett had been procured

from Monsieur Lacharme's establishment at Lyons, and were consequently genuine. The plants shown at South Kensington had, unfortunately, blooms on them which were not sufficiently open to show the rose in its true character. Monsieur Lacharme says that the only English rose-growers who have seen this rose growing in France are Mr. W. Paul and Mr. H. Bennett, and it is not at all likely that persons of their experience coul! be mistaken. We may therefore feel certain that plants of Madame Lacharme sent out by them will be the true variety.—HENRY TAYLOR, *in Gardener's Magazine.*

YUCCA BACCATA.—This new and very distinct species, found in New Mexico, Utah, and Arizona, and introduced into cultivation in Europe last year by M. Linden, of Brussels. In the rigidity of its habit and the texture of its leaves, it bears a greater resemblance to Y. cornuta, or Y. Treculeana, than to any species of the aloifolia section. It has a thick, wrinkled stem, about a foot high, on the summit of which are closely crowded the short, straight, erect, pointed, boat-shaped leaves of a light green color, bearing on their margins numerous long, broadish, and sharply pointed shaving-like appendages. The fruit is a capsule, as in all the Yuccas, but has the shape and fleshy consistence of a ripe Banana, by which name it is known to the natives of Western America. The taste is sweet and agreeable, and the Indians, who are very fond of it, gather and dry large quantities for winter use. The uncooked fruit is said to possess highly cathartic properties.—M., *in Garden.*

AQUILEGIA LEPTOCERA AUREA.—The *Garden* says of a specimen recently exhibited in London: "That fine yellow Columbine (Aquilegia aurea) shown at Kensington the other day, is a distinct and handsome plant, with fine clear yellow flowers, making it worthy of association with the very finest species of Columbine."

ECHEVERIA ROSEA.—This pretty plant is now in perfection, and amateurs who as yet know nothing of echeverias should contrive to see it. The plant is one of the neatest and brightest of its class at any time, but during winter its bright green elliptical leaves become delicately edged with carmine-red, and when this coloring is at its height there rises from every crown a spike of flowers of a very peculiar purplish-rose color, rendering the plant a very attractive and cheerful object in the very deadest season of the year. Echeverias generally are interesting plants in the winter and early spring, for many of them are then in flower, and make the fact known by their display of dashing blooms.—S. H. *in Gardener's Magazine.*

SAXIFRAGA PELTATA.—The rare and remarkable Saxifraga peltata, quite a giant among Saxifrages, is now in flower in the Stansted Park Nursery, Forest Hill. It belongs to the large-foliaged section, the leaves when fully developed being as large as those of Rhubarb. It is, therefore, as remarkable for its fine foliage as for its flowers, which are rose-colored.—*Garden.*

TEA ROSE PERLE DE LYON (*Belg Hort.*, 1873, 3).—A charming portrait of a lovely rose lately introduced in commerce, and included in the latest list in the *Garden Oracle.* It is described by our friend, M. Sisley, as a vigorous grower, the young stems purplish, the leaves richly bronzed, the flower-buds elegantly conical, and the flowers cupped-globular, and of a most delicate pale yellow color shading to citron in the centre. Yellow roses are in high favor with English amateurs, not a few of whom will desire soon to possess the Pearl of Lyons.

THE MALVA TREE.—At a late meeting of the Sacramento Farmer's Club, the following report was given in regard to this tree: "The malva tree seems originally to have come from Japan; its botanical name is *Lavatera assurgentiflora* (Kellogg,) and is valuable for ornament, shade and for feed for animals of all kinds. It attains a maximum height of thirty feet in about eight years; is evergreen, and blooms nearly the whole year round. The trees grow from seeds which drop from the tree, and require no cultivation whatever. They grow rapidly, and in two years cattle could be allowed to browse on them, as they do not eat the branches, only the large, mucilaginous leaves. Cattle, sheep, horses, rabbits and goats all seem to prefer the leaves to any other food. The trunk or body of the tree is the part which contains the fibre, for the branches are nearly always tender and green, not wood. Its leaves and seeds possess much medical virtue as a demulcent, having the properties of both field-mallows and slippery elm. To get a good start, these trees should not be molested by cattle for at least two years; after,

the leaves will grow as fast as they are eaten off, leaving the flowers to mature and the seeds to fall unmolested, and the fibrous trunk to grow."

THE *Journal of Horticulture* refers to the following:

Aquilegia leptocera aurea.—This is a new introduction from the Rocky Mountains. It is closely related to A. canadensis, and in habit of growth, foliage, and height resembles that species. The flowers are, however, pale straw-colored; and being a free-flowering plant, it will form a very desirable contrast to the blues and reds of other species and varieties. It appears to be as easily cultivated as any of it congeners, and quite as hardy.

Fritillaria tulipifolia.—This is one of those hardy flowers that may be described as peculiar and striking rather than beautiful or ornamental; but being a spring flower, it will be of interest to amateurs and others who delight in variety of character independently of showy colors. The flowers are solitary, drooping, large and like an inverted Tulip, very dark or brown purple inside, and milky blue outside. It is very hardy, and grows freely in common garden soil. Native of the Caucasus.

Campanula Medium calycanthema.—The Canterbury Bell, though a favorite flower, and cultivated of old with more zest than now, has not improved, nor had any very striking feature added to it till within the last few years. The pale-rose varieties are the most marked improvement in color that have been introduced for a generation or two, but we can now speak of an alteration in the calyx in the present subject, which adds a new interest and value to this old-fashioned flower. In this new variety of Canterbury Bell, the calyx is petal-like in color, and to some extent it approaches the petal in size also, being much enlarged. At present the calyx is the same color as the petal—blue or white, as the case may be; but a rose-colored calyx and white petal, or a blue petal and white calyx, or *vice versa*, may be amongst the possibilities of the not very distant future.

Myosotis alpicola.—This is a diminutive but very pretty Forget-me-not. It forms a neat tuft about 3 inches high, with small, dark green, hairy leaves and deep blue flowers, slightly fragrant—the latter quality most noticeable at night. It is best adapted to pot culture among choice Alpines in a cold frame. The protection of a frame in winter is of most importance, because it is apt to perish of wet in the open ground. In summer, when making its growth, it will bear abundance of water, and must have it in plenty if free growth is to be encouraged, but the drainage should be very good. On well constructed rockwork it will succeed better than on level borders, and may be left out in winter if care is taken to cover it in prolonged wet weather with a cloche or bell glass. Gritty loam is the most congenial soil for it. It is an old plant, but rare.

Pentstemon heterophyllum.—Beautiful and numerous as are the species and varieties of this favorite genus, the present species lately introduced to cultivation is scarcely equalled in point of color by any of the older and better known ones. It grows about 18 inches high, in neat compact style. The leaves are narrow lanceolate, pale green or glaucous. The flowers are produced on long racemes, borne on slender stalks, and are brilliant sky-blue. From seed, the plant varies somewhat in color in the depth of the blue, and occasionally in being reddish purple. It is a native of California. I cannot speak from experience of its hardiness and cultivation, but it does not appear to be more difficult than that of other Pentstemons. In wet, cold localities, stock should be struck in autumn in pots, to keep over winter under protection.

Primula elatior magnifica.—This is one of the most beautiful of the elatior tribe of Primroses. It has the compact tufted habit of all the breed. The flowers are large, about the same size, and fringed in the way of a good type of Chinese Primrose, bright gold in the centre, and shading into clear primrose yellow on the margin. They are supported on stout stalks high above the foliage in great profusion, and are very fragrant. It is a beautiful plant for spring bedding, being very showy and effective in masses at a distance, and withal neat. For pot culture, for the purpose of greenhouse decoration early in spring, it is very desirable, as it bears forcing very well, and lasts a considerable time in bloom.

Saxifraga peltata.—One of the most extraordinary and distinct of its family. It produces large lobed leaves 8 inches across, attached near the centre to strong stalks 18 inches or 2 feet long, and bearing striking resemblance to an umbrella, in consequence of which it is popularly called Umbrella plant. The flower stalks rise to the height of 2 feet, bearing cymes of large, white, rose-tinted flowers. It forms strong fleshy creeping stems, and is found growing on the

margins of streams in California, with the stems frequently submerged. This at once suggests its fitness for ornamenting the banks of streams and lakes in this country.

FRANCISCEA MAGNIFICA.—This fine hybrid is intermediate between F. eximea and F calycina. Its comparatively large Laurel-like, oblong, lanceolate, wavy margined leaves partake of the latter in habit, whilst the remarkably large rich lilac salver-shaped blossoms assimilate to the former, but which, being nearly double the size of F. eximea in bloom, proves the proportionate merit and greater beauty of the plant.

NEW PERPETUAL-FLOWERING CARNATIONS.—Coronet, pure white, fine quality, profuse bloomer; Alphonse Karr, beautiful, a brilliant scarlet-flake on white, fine habit and growth; Golden Eagle, yellow, with thin margin of red, nearly a yellow self; Dragonfly, brilliant orange tinted scarlet: Royal Scarlet, splendid scarlet, the finest in cultivation, robust and fine habit; Malakoff, pure white, clove-scented, good growth; Madame Ammont, violet self-color; Estelle, claret-rose self; General, pure clear yellow-tipped scarlet; Daylight, yellow, with deep rose margin; Duchesse, white, margined cherry-red; Clarabel, white veined with scarlet-salmon.

FRANCISCEA VIOLACEA GRANDIFLORA.—This is an equally fine hybrid production, between F. calycina and F. laurifolia, forming a very vigorous evergreen-leaved stove shrub, with elliptically oblong leaves less wavy or glossy than the preceding one, but equally free and robust in growth, producing its large rich dark purplish lilac salver-shaped flowers in the early spring and summer months.

VERBENA MONTANA.—This is a hardy creeping variety from beyond the Rocky Mountains, introduced to us of the East, but which has never made headway. It is rose color, and blooms from spring till frost. It appears to be getting popular in Europe.

DOMESTIC INTELLIGENCE.

CURCULIO.—The *Gardener's Monthly*, for January, 1873, contains an article on the "Influence of extreme cold on the Curculio." T. T. Southwick, of Dansville, N. Y., takes the ground that when the soil is frozen hard and long during the winter, and reaches far enough down frost destroys the pupa, and advances the theory that the Curculio will freeze out in winter.

Last year was every where noted for freedom from the Curculio. In the fruit regions of New York, Delaware, New Jersey, Michigan and Missouri, (the same true to a large extent in Illinois, though we remember to have read complaints of them from some sections of that State), plum trees bore the largest and finest crop for many years.

The question arises, to what was this freedom from Curculio attributable? In this section the answer has been—to the use of the Ransom trap, and the general destruction of the little turk with the sheet, and also to the picking up of allen fruit.

Another answer is found in the large increase of the parasite discovered by W. B. Ransom, pointed out to Professor Riley, State Entomologist of Missouri, and subsequently described by him.

It is evident, however, that the method of accounting for freedom from the Curculio in the Michigan peach region, will not apply to sections of country where no such modes of extermination have been applied. The fact also that the absence of Curculio was general in 1873 would indicate a general cause for their destruction.

Our fruit-growers do not believe that extreme and continued cold exterminates the curculio, because the weight of belief, (no reliable testimony of the fact is yet on record in Michigan), is in favor of the curculio hibernating out of the orchard. The grounds of the belief are these: First, the curculio crop are all hatched and out of the ground long before cold weather closes the ground. They pass their transformation in from 21 to 28 days. In the spring without an excep-

tion, before the curculio fly, when the Ransom traps are set through the whole orchard, curculio will only be taken under the traps set on the first two or three rows, and the number regularly diminishes toward the heart of the orchard. The concurrent testimony in this direction is so strong that many careful fruit-growers in the early season, having set their traps before the appearance of curculio, only watch the outside row of trees where the curculio invariably make their first appearance. We do not believe cur culio are generally destroyed by cold; but from an experiment of our own on curculio kept through the winter, are satisfied that they can be frozen and thawed so many times as to kill them.

A reason for the destruction of curculio last year, and the year previous, suggested we believe by Prof. Riley, commends itself to our fruit-growers as more reasonable than the freezing-out theory, namely, intense and long continued heat. Two seccessive years have presented heated terms so intense and continued that the ground has been baked for lack of moisture, throwing obstacles in the way of the soft worm entering the ground, living in the ground, and leaving the ground after its transformation.

We present this subject to our readers for their consideration, leaving them to investigate the subject. Where does the curculio hibernate? Does extreme and continued cold destroy the curculio? Does extreme and continued heat destroy the curculio? How far will the parasite destroy the curculio? Can we afford to let the traps, the bugging sheet, and picking up the fallen fruit go and depend on natural means of destruction for the curculio alone? For ourselves we answer the last question emphatically, No! and so think it would be answered by every careful fruit grower in this section.—*St. Joseph Herald.*

AN EARLY PEA.—The "Philadelphia" is the name of a fine variety of the pea, a sample of which has been left at our office by E. Rishel, Esq, of this county. Mr. R. says this pea is very early, and will shell out in five weeks from planting.—*Central Union Agriculturist.*

ORIGIN OF SMITH'S CIDER APPLE.—This apple originated on the farm of Thomas Smith, (who died many years ago), in Buckingham, Bucks County, Pa. Mahlon Smith, a venerable old gentleman, ninety years of age, was in attendance at Bucks Quarterly Meeting of Friends last week. He informed the writer that he lived when a boy near Thomas Smith's, and that he had seen the original apple tree "hundreds of times." His remembrance in relation to it is corroborated by several other aged people in the neighborhood. I know some other farms have claimed the honor of originating this apple, but they are not entitled to that distinction. As I am seventy years of age myself, and have lived in this vicinity all my life, it may be presumed I know whereof I speak.—F., *in Germantown Telegraph.*

EXPRESSIVE NAMES.—A writer in the *American Agriculturist* quaintly observes, "We are not, after all, up to our English brethren in devising names for horticultural fixtures and appliances. Does frost injure your Peach trees? —Then grow them under the 'Portable Fruit tree Crymoboethus.' If this is not sufficient protection, cover the glass with 'Frigi-domo,' and increase the temperature inside by means of a 'Calorigen.' Should the trees grow out of bounds, you can shorten them with an 'Averruncator,' and shou'd scale, mealy-bug, and the like molest, you have only to apply some 'Phytosmema.' Truly it must be lots of fun to 'horticult' in England."

GARDENER'S MATS.—Although late in the season for such articles as "Gardener's Mats," allow me to use a little space to describe a frame I have constructed to facilitate the weaving of mats, which has been thoroughly tested during the winter; one somewhat different and better in many respects than any I have ever seen. Make side pieces two and five-eighth yards long, of stout material—mine being made of an old ladder frame. Make ends of narrow strips of board one and three-eighth yards long. The legs are slanted outward and strengthened by cross pieces nailed near the floor. Place on the outside of the side pieces, narrow strips as a guide for laying on the straw. Next, procure two strips of board two and a half inches in width, and one and three-eights yards in length. Bore holes in the ends of these, also the end pieces of the frame. Screws should be put in at regular intervals in each of these movable boards, and four wooden pins or large nails near at hand. Now here is where I claim advantage. Place the movable boards in the frame and insert the pins. At the workman's end, tie the

twine in loops and place on the screws; stretch across and tie in a half bow knot at the opposite end. After weaving as far as one can reach, remove the loops, slide the opposite board along to a set of holes made in the side pieces, pull the mat over and its own weight will keep it in place, and so on until the mat is completed.—*Correspondent of Maine Farmer.*

ILLINOIS INDUSTRIAL UNIVERSITY—EXPERIMENTS WITH EARLY CABBAGE—These experiments, says Mr. H. K. Vicroy, orchardist and gardener, were made on poor land, lightly manured with course horse manure and plowed under about 8 inches deep. They were planted the same day, May 8, 1872, and received the same care. The gross weight given is that of the whole plant above the stalk, the net weight that of the cabbage with the leaves trimmed off ready for market.

The following list in the order of ripening have done well in the market garden and vicinity; a few Little Pixie for very early—too small for profit—Jersey Wakefield, Early Wyman, Falter's Improved, Winningstadt, and Schweinfurth.

Winningstadt is very solid from the time it begins to head to maturity, and is very valuable on this account, as it will do to market before it is ripe

Six plants of each were set out, but as one or two plants died in some cases, the following averages are not all made from six heads:

Varieties.	*Matured.*	*Weight.* Gross lb-oz.	Net lb-oz.	*Loss.* lb—oz	p. ct
Dwarf Loch	July 23	4- 1	2-12	4- 5	32.3
Early Dwarf Savoy	"	3- 7¾	1-12¼	1-11½	50
Early Wyman	Aug. 10	4-12¼	3-14⅛	1- 1⅛	18.
Enfield Market	"	5- 7⅝	4- 1	1- 6½	25.8
Early Blood Red	"	4-15⅝	3- 2½	1-13⅛	37.1
Jersey Wakefield	" 1	6- 4½	4- 1½	2- 3	35.1
Little Pixie	July 23	2- 6¼	1-11	11¼	21.5
Large Oxheart	"	5- 5⅛	3-13	1- 8½	28.5
Large York	"	4- 7⅞	3- 5½	1- 9⅜	35.7
Schweinfurth	Aug. 1	6- 9⅛	4-13½	1-11½	26.1
Sugar Loaf	"	5-10	3- 9	2- 1	36.6
Winningstadt	" 10	6-13¼	3 15½	2-13¼	41.7
Wheeler	" 10	2-15½	1- 6⅛	1- 9⅜	53.2

GARDENING FOR WOMEN.—There is nothing better for wives and daughters, physically, than to have the care of a garden; a flower pot, if nothing more. What is pleasanter than to spend a portion of every day in working among plants, watching their growth, and observing the opening of their flowers, from week to week, as the season advances? Then how much it adds to the enjoyment to know that your own hands have planted them and have pruned and trained them—this is a pleasure that requires neither great riches nor profound knowledge. The advantages which woman personally derives from stirring the soil and sniffing the morning air are freshness and beauty of cheek and brightness of eye, cheerfulness of temper, vigor of mind, and purity of heart.—*H. B. Stowe.*

UNDER THE VIOLETS. BY OLIVER WENDELL HOLMES:—

Her hands are cold; her face is white;
No more her pulses come and go;
Her eyes are shut to life and light;—
Fold the white vesture, snow on snow,
And lay her where the violets blow.

But not beneath a graven stone,
To plead for tears with alien eyes;
A slender cross of wood alone
Shall say that here a maiden lies
In peace beneath the peaceful skies.

And grey old trees of hugest limb
Shall wheel their circling shadows round
To make the scorching sunlight dim
That drinks the greenness from the ground,
And drop their dead leaves on her mound.

When o'er the boughs the squirrels run,
And through their leaves the robins call,
And, ripening in the autumn sun,
The acorns and the chestnuts fall,
Doubt not that she will heed them all.

For her the morning choir shall sing
Its matins from the branches high,
And every minstrel voice of spring,
That trills beneath the April sky,
Shall greet her with earliest cry.

When, turning round their dial-track,
Eastward the lengthening shadows pass,
Her little mourners clad in black,
The cricket, sliding through the grass,
Shall pipe for her an evening mass.

At last the rootlets of the trees
Shall find the prison where she lies,
And bear the buried dust they seize
In leaves and blossoms to the skies.
So may the soul that warmed it rise

If any born of kindlier blood,
Should ask, What maiden lies below?
Say only this: A tender bud,
That tried to blossom in the snow,
Lies withered where the violets blow.

A NEW POISON—STROPHANTHUS HISPIDUS.—There has lately been discovered a poison

called *inœa*, which is said to be more subtle than digitaline. It is obtained by pressure from the seeds of *Strophanthus hispidus*, an apocynaceous plant, found in Gaboon; and from experiments made with samples of it, taken from arrows, upon which the natives place it, it appears that it acts more powerfully than digitaline or antiarine, and quickly paralyzes the heart. Three milligrammes kill a frog, a sparrow, or a dog, though the resistance of certain animals varies. A snail, for instance, requires five milligrammes; a mouse has withstood three milligrammes of the extract (obtained by macerating the seeds in alcohol), while this latter dose kills a dog nearly a thousand times heavier than the mouse. The heart comes to a complete standstill after a few irregular efforts.—*The Druggist.*

THE PERSIMMON.—We are not a little surprised year after year that this beautiful ornamental shade tree, rich in its glossy leaves, clean and neat in its contour, majestic in its height, graceful, yet stately, in its outline, and possessing besides the elements that generally bring mankind to a full conception of its value, viz: a production of fruit that pays pecuniarily, should be so long and so generally neglected. We know there are varieties that bloom and do not mature fruit, also that there are varieties the fruit of which is austere and almost uneatable, even after severe frosts have toned it down quiescently; but we also know there are varieties, the fruit of which ripens in early September, before any frost has come, and the fruit whereof is delicately rich and luscious, and is sold in the markets of our Southern cities, as readily and at as good prices as peaches or grapes.

Let us say a few words then to those who are about to plant ornamental trees, one or more, think ere you plant, look at and count the beauty of our native Persimmon. See its hardihood and cleanliness, estimate its fruit productions, and don't waste time or ground with Ailanthus, Catalpa or Cottonwood, when you can have the Persimmon. It is easily and readily grown from seed.—F. R ELLIOTT, *in Fruit Recorder.*

MAGNOLIAS AT LEXINGTON, KY.—Every one in Lexington who cares much for flowers, has heard of the deservedly famous Magnolia that adorns the surburban home grounds of Horace Craig, Esq. Nowhere have we enjoyed the sight of a finer specimen of the kind than the one here referred to; and early in the season, shortly after the blossoms have unfolded, and before the spotlessly pure white corollas get blemished by a single trace of decay, if we mistake not, Mr. Craig's lawn has one rich, rare object, without an equal in all the Blue Grass country. That peerless representative of Magnolia conspicua, originally from China or Japan, came to this section over twenty years ago; was purchased from the late A. J. Downing, the prince of American landscape gardeners, and has grown up to testify to the culture and refinement of James O. Harrison, Esq., who then owned and ornamented the property with many of the most beautiful trees and shrubs, some of which have been destroyed. The flowers of Magnolia conspicua are produced before the leaves, and, as Thomas Meehan says, "combine the fragrance of the lily with the beauty of the rose." There is another Magnolia from China known amongst botanists as M. purpurea, hardly less valuable and fragrant than the white kind described above. The former becomes a small tree, whilst the one now engaging our attention does not, in so far as we know, get beyond the dimensions of a large shrub. M. purpurea is not very rare in the country around Lexington, and there are a couple of superb specimens in the little neglected garden forming a part of our Agricultural College grounds. And, moreover, in this, as in the above. the flowers are fully open before the development of any foliage. The corolla is of a lilac-purple color on the outside, but paler within, and nearly every bud expands into a blossom. We have not been able to learn who set out the two noble specimens of M. purpurea now growing at Woodlands.—*Farmer's Home Journal*, Lexington, Ky.

EXCURSION OF BOSTON FLORISTS.—The deck and cabin of the steamer Favorite were the scene of a most enjoyable excursion yesterday, the occasion being an assemblage of florists of Boston and vicinity, to the number of one hundred and fifty, who responded to the invitation of Messrs. Dee & Doyle, and M. H. Morton, each of whom have received from his brother florists during the past season a fine Howard watch, and in return for which they tendered this compliment. Between the efforts of Messrs. Wm. H. Hunt, the well-known humorist, G. F. Ketchum, the facial phenomenon, and E. McElroy, the carterer, no moment of the day

was allowed to pass unoccupied or unenjoyed. The sturdy gardeners from the suberbs threw off, for the nonce, their busy cares and labors, and becoming boys again, enjoyed with unusual zest and quips and cranks of the professional jokers and their own outbursts of playfulness. The band filled up the spaces, and it was hard to find time for the event of the day, which was the presentation, by Mr. Thomas W. Dee, in behalf of his fellow florists, to Mr. F. L Harris, gardnener to H. H. Hunnewell, Esq., of a magnificent watch and chain, costing $400. Mr. Dee's speech was pointed and graceful, and Mr. Harris, totally taken by surprise, was scarcely able to find words for a reply.

The trip extended below Nahant and across to the South Shore, and, in returning, the company whiled away an hour or two at Long Island. If the unanimous and oft repeated endorsements of the company are any criterion, the trio of gentlemen whose generosity and gratitude inaugurated this excursion, have every season to congratulate themselves on the perfect success of their enterprise.—*Boston Journal*, July 31st.

FOREIGN INTELLIGENCE

Bees and Honey in France.—Honey and wax are harvested twice a year in France. The earlier occurs according to location, from the latter part of May to the middle of July. This is called the summer harvest, and is usually better both in quantity and quality than the fall harvest. The honey is finer, better flavored, more aromatic, and more easily drained from the wax. It is a pure nectar, collected from a great variety of flowers, and is little contaminated with pollen, particularly if gathered in supers.

At the beginning of July the honey harvest is usually at an end in Gatinais, while it is then just beginning in Picardy and at Troyes. In some of the southern departments the harvest commences a few weeks earlier than in the northern.

In the departments of Eure and Loire, they generally estimate that the product of a good stock of bees is five per cent. on the capital invested. The yield of honey and wax in the four departments, Gironde, Landes, Lot et Garonne, and Dordogne, amounted to about two millions of pounds in the year 1866. In 1867, the summer harvest of honey in Gatinais amounted 900,000 lbs., which was regarded as a fair average yield.

The fall harvest begins about the 15th of September, and continues till the end of December, according to the greater or less abundance of the yield, and the state of the weather.

At the summer harvest only a portion of the honey and wax is taken, a sufficiently supply being always left in the hives to ensure the safety of the colonies in the event of an unfavorable season or a deficiency of pasturage. The largest portion of the honey harvested in the fall is derived from buckwheat, heather, and late blossoming plants; and is much inferior to the summer honey in quality and flavor. It is also darker in color, and very soon crystalizes. It does not drain so readily from the wax, commonly requiring heat and pressure to effect a separation, thus deteriorating the product.

The honey is stored in large vessels or barrels, and care is always taken that the place where it is deposited is dry and warm. Watery honey deposited in a damp place soon spoils, and even the best honey will in time be injured if exposed to dampness.

Let the harvest be good or bad, the bee-keepers always keep honey enough on hand to carry their bees safely through the longest winter.—*Canada Farmer.*

Growing and Flowering Eucharis Amazonica.—I wish to place before your readers the treatment which has been carried out here for nearly twenty years. About that number of years ago we obtained two bulbs; they rapidly increased, and now we have a very large stock, many pots full of bulbs from 8 to 12 inches in diameter, besides several larger from 18 to 24 inches, great masses which have not been repotted for several years. These produce from six-

teen to twenty-four flower stems at a time, and bloom from three to four times annually.

Our treatment is simple; the pots remain in the same places all the year round in a moderate stove heat, varying from a maximum of 80° in summer, to a minimum of about 52° in winter. They are never compelled to go to rest, but are freely watered whenever they appear to require it, and the foliage is a brilliant deep green all the year round. Whether this treatment is orthodox or not, I do not pretend to say, but that it is successful is apparent from the results of the period of bloom during the past year:—

Days in flower...	January	31
"	February	28
"	March	30
"	April	21
"	May	—
"	June	30
"	July	31
"	August	25
"	September	30
"	October	27
"	November	30
"	December	31

Total, 314 days out of 366, not a bad result, and such has been the case here for several years.—JOHN SAYERS, *Gardener, Rockville, Blackrock, Co. Dublin*, in *Journal of Horticulture*.

THE FINEST FRUIT IN THE WORLD.—The Durian, a fruit about which very little is known in England, but which is reckoned by natives and Europeans in the Malay Archipelago to be the finest fruit in the world, grows in great abundance in Java and Borneo. It grows on a large and lofty forest tree, somewhat resembling an Elm in its general character, but with a more smooth and scaly bark. The fruit is round or slightly oval, about the size of a large Cocoanut, of a green color, and covered all over with short stout spines, the basis of which touch each other, and are consequently somewhat hexagonal, while the points are very strong and sharp. It is so completely armed, that if the stalk is broken off it is a difficult matter to lift one from the ground. The outer rind is so thick and tough, that from whatever height it may fall it is never broken. From the base to the apex five very faint lines may be traced, over which the spines arch a little; these are the sutures of the carpels, and show where the fruit may be divided with a heavy knife and a strong hand. The five cells are satiny white within, and are each filled with an oval mass of cream-colored pulp, imbeded in which are two or three seeds about the size of Chestnuts. This pulp is the eatable part, and its consistence and flavor are indescribable. A rich butter-like custard highly flavored with almonds gives the best general idea of it, but intermingled with it come wafts of flavor that call to mind cream-cheese, Onion-sauce, brown-sherry, and other incongruities. Then there is a rich glutinous smoothness in the pulp which nothing else possesses, but which adds to its delicacy. It is neither acid, nor sweet, nor juicy, yet one feels the want of none of these qualities, for it is perfect as it is. It produces no nausea or other bad effect, and the more you eat of it the less you feel inclined to stop. In fact, to eat Durians is a new sensation, worth a voyage to the East to experience.—*Garden*.

THE QUINCE.—The Quince is a native of Crete, *i. e.*, Candia, but is also found apparently wild in several parts of Europe, and I think in Armenia, about Mount Ararat; but, although a native of warm latitudes, it nevertheless is tolerably hardy in this country, but not completely so, very severe winters often damaging it much. I need not enumerate the mere ornamental, sorts, which are principally from Japan and China, as they have as yet proved of but edible fruits, and I need only particularise the *Apple*, the *Pear*, and *Portugal* as the only sorts worth growing as fruit-trees, although there are a few varieties more that are largely grown for budding and grafting the Pear upon. Columella says Quinces "not only yield pleasure, but health." None of the sorts have as yet been so ameliorated as to be fit for eating raw, but are much esteemed when preserved and otherwise cooked; to apple-tarts they communicate a delightful flavor and piquancy, and by adding sufficient sugar and water, a tolerable wine may be made from them; as a medicine they are supposed to be useful in asthma.

The Apple-shaped is perhaps the most profitable to grow as a market fruit, as it bears abundantly, and stews well. *The Angers* and *Paris* or *Fontenay Quinces* are mere varieties of the above, and are largely used for working Pears upon; but the *Portugal* sort is a far better stock, being hardier, a free grower, and keeps pace with the Pear worked upon it, whilst the graft overgrows the other varieties when used as stocks: these are, however, much more used than the Portu-

gal, as they are freer to strike root. Hence the nurseryman can more easily get up a supply of them, for grafting his Pears upon.

The Pear-shaped Quince is drier and tougher than the Apple-shaped, and is of less value in cookery; the fruit, however, keeps much longer than the apple variety.

The Portugal Quince is superior to all the rest in quality and flavor. For cooking and preserving it is much to be preferred, as the fruit turns a beautiful purple or deep crimson when cooked, and the tree grows stronger, but unfortunately does not bear so freely as the others; hence it has not been so much cultivated, growers generally preferring quantity to quality, a vice I decry, as I think the best should always have preference. As an instance of how much some cultivators value quality or the production of the best article for the market, I may mention that I had an order for a quantity of that nasty little Pear called *Bonne Jeanne*, of third-rate size, and much below third-rate quality, but an enormous bearer, the gentleman ordering not caring whether the public got good fruit or not, so long as he could pocket the bawbees. — *Scott's "Orchardist"*

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

CENTENNIAL HORTICULTURAL EXPOSITION.

At a meeting of the Pennsylvania Horticultural Society, held on Tuesday Evening, August 19th, 1873, a communication was received from the National Centennial Commissioners, requesting this Society to co-operate with the Centennial Commission in the preparation and management of the Horticultural Department of the Centennial Exposition in 1876.

In compliance with this request, the Pennsylvania Horticultural Society voted to instruct the President of the Society, W. L. Schaffer, Esq., and J. E. Mitchell, Esq., Chairmen of the Society's Committee on the Centennial, and of the Committee of the City Councils (who has just returned from Vienna), to invite the Horticultural Societies throughout the United States to send each a Delegate to a meeting, to be held in Philadelphia, on Wednesday, September 17th next, at the opening of the Autumnal Exhibition of the Pennsylvania Horticultural Society.

The official notices shall be issued in a few days.

The Publication Committee of the Pennsylvania Horticultural Society have issued this message promptly, in order to notify the friends of Horticulture of the above matters as early as possible, so that proper action may be taken to secure a Delegate from each Society before members leave for the meeting of the National Pomological Society at Boston, September 10.

COLLECTIONS OF FRUITS FOR SEPTEMBER EXHIBITION, 1873.

In connection with the above, the Publication Committee of the Pennsylvania Horticultural Society earnestly solicit Delegates to the National Horticultural Convention, called as above stated, to bring with them, or send per Express, collections, large or small, as may be convenient, of specimen Fruits, (Pears, Apples, Grapes, &c ,) to be exhibited at the Autumnal Exhibition of the Pennsylvania Society, September 16th to 19th. Fruit Growers generally, Horticultural Societies, &c., are also invited to contribute to the Autumnal Exhibition.

The Members of the Pennsylvania Horticultural Society desire to make the Autumnal Exhibition this year, as far as possible, National in its character, preparatory to the Grand Centennial Exhibition in 1876. The grounds for the Horticultural Garden, the Grand Conservatories and Plant Houses for the Centennial Exhibition, have already been set apart by the Commissioners, and it is expected that some of the buildings will be erected early next year.

A Plant and Flower Market

will be held in the Lower Hall, during the continuance of the Exhibition, where contributors may offer for sale any Plants, Trees, Flowers, or other Horticultural products. This has been found to be a very interesting and useful feature of the Exhibitions.

Packages of Fruit may be sent by Express, addressed as follows: THOS. A. ANDREWS, Su-

perintendent of Exhibition, Horticultural Hall, Philadelphia, Pa.

MASSACHUSETTS HORTICULTURAL SOCIETY.

It is often a matter of regret with us that no one in Boston ever thinks it worth while to send notes of anything which occurs at the meetings of the Society, for publication in the horticultural journals. Because nothing much appears, our readers must not think the Society inactive; on the contrary, it is one of the most active, and its influence on the community in and around Boston, of the most decided character. The Volume of Proceedings for 1872, kindly sent to us by the Secretary, we have noticed before; but the following in detail, condensed for the *Country Gentleman*, contains so much of interest to our readers, that we give it in full:

The Transactions of the Massachusetts Horticultural Society for 1872, a volume of nearly two hundred pages, contains rich treasures in the shape of horticultural information, some of which we present to our readers in a condensed form.

STRAWBERRIES.—The Colonel Cheney is highly commended by the Fruit Committee, being large, handsome, bright scarlet with yellow seeds, resembling the Jucunda, and slightly irregular in form. Flesh solid, of fair quality, but not equal to Triomphe de Gand—pistillate. The Nicanor is pronounced the best early strawberry, larger in size than Jenny Lind, of good quality, and "quite as productive as the Wilson"—the plants very vigorous and hardy, standing through winter better than any other sort. This was the experience with Mr. Heustis—it had not succeeded quite so well with others. A new seedling, raised by J. B. Moore, of Concord, was reported; a dark red, glossy, conical, solid and rich berry, comparing favorably with the President Wilder.

Mowing Strawberries was recommended, several having found the practice beneficial, by producing a growth of more vigorous foliage.

CURRANTS.—The Versailles carried off the prizes for red varieties, while Dana's Transparent was superior to any other white. The specimens of the latter were "the best ever shown, and it may safely be pronounced the most desirable white currant."

White hellebore is still regarded as the best remedy for the currant worm, and as cheap as any. A good way to apply it is to put it in a wide-mouthed jar, with a lip round its opening, over which one or two thicknesses of fine muslin are tied. Through this the hellebore is shaken directly where it is wanted, and is certain death to every worm it reaches.

GOOSEBERRIES.—The first prize was awarded to the Downing, second to Smith's Seedling, and third to Houghton—all being, in the opinion of the committee, superior to the Mountain Seedling.

RASPBERRIES.—The Clarke grows in estimation, particularly for family use. Of *Blackberries*, the Dorchester still holds the preference. The Wilson has done well.

SEEDLING PEARS.—Messrs. F. & L. Clapp have exhibited several of their seedlings of such excellence that a few years since every one would have been thought worthy of a name and introduction; but the standard is higher now, and they are on trial. Francis Dana showed one considerably resembling the Lawrence; another like Winter Nelis, beside two others; but we do not learn that they are better than old sorts. One of the most remarkable collections was presented by President Wilder, and grown by B. Fox, San Jose, Cal. They were all from the seed of Belle Lucrative, but with one exception no resemblance to the parent could be discovered; but several of them present strong likenesses to other well known sorts. One resembled Bloodgood; another, Winter Nelis; and others Seckel, Lawrence, Superfin, Josephine de Malines, &c. This result is ascribed to the fertilization of these sorts standing near.

Trouble with the Lawrence.—Parker Earle, of South Pass, Ill., sent very large specimens of the Lawrence, which had the appearance of being bruised around the eye, but which he says is something worse, being a sort of watery decay—one-fourth of his crop being thus affected, either on the tree or just after gathering, so as to be unfit for marketing. These spots were wholly independent of any insect injuries or bruises. The specimens sent were perfectly sound when put up. Possibly he thinks it may have been the result of the very hot summer—or perhaps, we suggest, something like fire blight, in the fruit.

GRAPES.—Among the new grapes, the Martha seems to gain favor, being very vigorous, and ripening better than formerly. It is pronounced as good as the Concord, which is mild

praise. A new grape was mentioned, raised by J. H. Rickets, of Newburgh, N. Y., a seedling of the Clinton, hybridized by a Muscat—bunch, long, shouldered; berry, medium in size, round, black; flavor, a sprightly Muscat. We hope it will be hardy, but mildew is likely to be a formidable trouble before many years with the crosses of native and foreign sorts. Moore's Early, from J. B. Moore, of Concord, has a large bunch and berry, and although regarded by him as the best of two thousand seedlings which he has tested, and thought by the committee as the best of fifty exhibited last year, yet it is said to have "a hard pulp, and some foxiness." This is probably, however, a fair average of success in raising new varieties without crossing.

NATIVE FLOWERS.—The large collections of native flowers shown during the season, constituted one of the most interesting and gratifying parts of the exhibition. On the 27th of April, "E. H. Hitchings and John Robinson had each a choice collection of native flowers, among them *Draba verna* and *Hepaticas.*" On the 18th of May, C. W. Jenks exhibited "fifty-two varieties of native flowers; John Robinson twenty one;" besides smaller collections. How many of these were distinct species, and how many varieties only, we are not informed. A little more scientific accuracy in this respect would be better. The same exhibitors had large collections May 25th, June 8th, June 29th, and August 10th and 24th. Among some of these fine flowers were *Cypripedium acaule*, *Pyrola secunda*, *Pogonia ophioglossoides*, *Lilium superbum*, *Orchis fimbriata*, *Aletris farinosa*, &c.

DEATH OF EVERGREENS.—A report on this subject ascribes the great loss which occurred during the winter of 1871-'2, to the severe drouth in connection with the cold, and many interesting facts are given bearing on the subject. It was not the intense cold that did the work, as was shown by the entire escape of the fruit buds of the peach in localities where hardy evergreens were killed to the ground. In one place the hemlocks were killed down; in another they nearly all escaped. Several varieties of the Rhododendron proved perfectly hardy, and others were destroyed. Native Kalmias were killed. Among the evergreens in the list that proved hardy, we observe *Picea Nordmaniana*, *Thuja tartarica*, *Taxus baccata*, *Pinus austriaca*, *Cembra* and *Pumilo*, and *Juniperus Chinensis*.

PRESIDENT WILDER'S LECTURE.—The most interesting and valuable paper in this volume, is the Lecture of Marshall P. Wilder, delivered before the Society, on "Hybridization and Production of New Plants for Seed." The subject is quite thoroughly treated, and the four different modes or systems compared, being. 1. The natural mode of self-impregnation, or by wind and insects. 2. Van Mon's system, by successive generations from wild seedlings. 3. Artificial or cross hybridization. 4. Selecting and grafting from sporting branches. Among the successful results of the natural mode, or more correctly of accidental impregnation, Clapp's Favorite pear is mentioned. It came from the seed of the Bartlett, while the tree and leaves are so strikingly those of the Flemish Beauty, that it obviously was fertilized by pollen from it. Among the fruits which have been much increased in size from their parents, the Beurre Clairgeau is cited as being obviously a seedling from the Capiaumont; and the Northern Spy apple, which is supposed to have its origin from the Red Canada. President Wilder attaches but little merit to the Van Mons method, and thinks his best results came from accidental crossings with adjacent standard sorts. The artificial mode, practiced so successfully by Thomas Andrew Knight, and by many others since his day, is the most reliable, satisfactory and certain. He refers to the experiments more recently performed by "Messrs. Rogers, of Salem; Underhill, of New York; Campbell, of Ohio; Arnold, of Canada; Moore, of New York, and Wylie, of South Carolina," as having afforded interesting results.

President Wilder urges, with his own peculiar eloquence, the importance of giving increased attention to the production of new fruits, and says, "If the members of the Society could produce only one new fruit annually, suited for general cultivation over a wide extent of country, like the Bartlett, Beurre d'Anjou, and Clapp's Favorite pear, the Baldwin, the Rhode Island Greening and Williams' Favorite apple, it would be worth more to the country than the expense of sustaining all the horticultural societies in the United States for fifty years to come." He utters these words, worthy of being put in letters of gold, "I would rather be the man who shall originate a luscious fruit, suited to cultivation throughout our land, of which successive generations shall partake, long after I shall be consigned to the bosom of mother earth, than to wear the crown of the proudest conqueror who has ever triumphed over his fellow men."

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HINTS FOR OCTOBER.

FLOWER GARDEN AND PLEASURE GROUND.

Dahlias, Gladiolus, Tuberoses and other plants that require winter protection for their roots in cellars, should be taken up at once on their leaves getting injured by the first white frosts. The two latter should be pretty well dried before storing away, or they may rot. Dahlias may be put away at once.

Chrysanthemums now in flower should have their names and colors rectified against the time when in spring they may have to be replanted, when they can be re-arranged with accuracy and satisfaction, according to the owner's taste.

Herbaceous hardy border flowers are often propagated in the fall by dividing the roots; but, unless it is convenient to protect the newly-made plants through the winter, it is better to defer this till spring, as the frost draws out of the ground and destroys many. Where it is now resorted to, a thick mulching of leaves or litter should be placed over the young stock when transplanted.

Few things are more valued in winter than a bunch of Sweet Violets. A few may now be potted, and they will flower in the window toward spring; or a small bed of them may be in a frame, which should be protected by a mat from severe frost. To have Pansies flower early and profusely in spring, they may be planted out in a frame, as recommended for the Violet.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower border.

Hyacinths, Tulips, Crocuses, and hardy Dutch Bulbs generally, must have immediate attention. Crocuses and Snowdrops are often planted out in the grass on the lawn; the former is not very objectionable as the leaves have so close a grass-like appearance; but the last should never be so employed, the foliage giving, the whole summer afterwards, a very course and weedy appearance to the lawn.

Hyacinths and Tulips may be set out in the beds devoted to summer-flowering bedding-plants, as they will, in a great measure, be out of flower before the bedding-time comes around, when they can be either taken up and transplanted to an out-of-the-way-place to ripen, or the bedding-plants can be set in between where the bulbs grow, without either much interfering with the success of the other.

As a manure for these bulbs, nothing has yet been found superior to well-decayed, sandy cow-manure; but where this is not conveniently at hand, well decomposed surface-soil from a wood will do as well.

The first two weeks in October will be the great tree-planting month of the fall season; and, as we have last month stated, the operation cannot be proceeded with too rapidly. In this region, at least, after the end of this month, every day's delay increases the risk of loss by the severity of winter; and, after the 15th, we would not care to plant evergreens, unless they were comparatively small, and the operation conducted with great care. Occasionally great success follows later planting—owing more to

good luck than sound judgment. Where planting is of necessity delayed, the risk is made less by pruning. The later a tree is planted, and the more exposed the situation, the more in proportion should it be pruned. It has become a pretty well settled axiom in American gardening that the way frost acts in destroying fall-planted trees is by excessive evaporation, by which the moisture is dried out of them; and this is to be obviated by shelter from cold winds, protection from the sun's rays, pruning, and other ways, which will suggest themselves to the reader according to his peculiar circumstances.

All operations connected with ground-work are now being pushed forward rapidly--grading, road-making, lawn-making, and so on. So much has been said of lawn-making in our past issues, that little remains to be said here. One of the newest improvements in sodding a lawn is not to lay the pieces of sod close to each other. Pieces can be cut into any size or shape and laid down several inches from each other, the soil being loosely thrown aside by the trowel to make the surface of the sod and the surrounding soil nearly level. On a large scale, a wide drill which any ingenious laborer could construct, or even a shallow furrow with a plough as in "marking out" for a corn crop, might be employed, and the pieces of sod, about six inches square, set in four or six inches apart. A bush-harrow, afterwards drawn over the lot, levels the loose soil in the spaces between the sods, and the roller afterwards passed over the whole makes a good, firm, plain job. When the grass commences to grow in the spring, it soon spreads into the unoccupied spaces; and before midsummer the whole becomes one uniform sheet of grass. This method, which may be called sodding by inoculation, saves just one-half the cost of sodding by the usual mode, and is very near as good, in fact, quite as good, after a few months of time, and costs a very little more than seeding-down, which, except under the management of one who thoroughly understands his subject, is one of the most unsatisfactory of all regular modes. Where seeding-down is to be the mode, now is the time to see about it.

The greatest difficulty we have to contend against in making good lawns, is the coarse rank weeds with which most parts of our country abound; and no effort that can be made to guard against their introduction, or to provide for their eradication at the outset, will be ill spent. It is often an easy matter at first; but after they have once been suffered to establish themselves, it is often better to dig or plough up the whole surface and lay it down anew. Sometimes much may be accomplished in old lawns by digging out the weeds with a trowel or spade, filling up the holes with soil, into which the grass will soon run and obliterate the traces of the work.

In all our operations *saving labor* should be our first consideration—not that kind of labor-saving which half does an operation, but which will produce an equal result at a less cost. The introduction of grasses that will always remain green, and yet grow so slow as to require little mowing, is one of the new features in this line. Experiments are wanted with many kinds of native plants that are to be found in most localities. Of course, all those who propose new improvements, or try novel experiments will be laughed at and pointed out as "humbugs," but that should not deter any one from following the path of progress.

Where a choice can be had of a kind of grass for a lawn, in our opinion the perennial Rye grass (*Lolium perenne*,) is the best for general purposes. Its shining green leaves, playing in the spring suns, give a very cheerful effect to lawn scenery. Its only drawback is that it will not bear very close mowing in hot weather, if once allowed to grow long. Kentucky Blue grass, (*Poa pratense*,) the Green Grass of Pennsylvania, also makes a fine lawn.

GREENHOUSE.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be planted at once. Four or five-inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

Where many flowers are desired for bouquets in winter, a good stock of such as flower easily should be provided, especially of white-flowering

kinds, without a good sprinkling of which a bouquet has but a very commonplace look.

Deutzia gracilis and D. scabra, Philadelphuses, and Tamarix are very good hardy plants to pot for winter flowering. The Iberis sempervirens is also a splendid white to force for its white flowers. Lopezia rosea is nearly indispensable for giving a light, airy gracefulness to a bouquet; and Camellias and Azaleas cannot possibly be done without.

Many kinds of annuals also come well into play; amongst other things, Phlox Drummondii, Sweet Alyssum, Collinsia bicolor, Schizanthuses, Mignonette, and Nemophila are essential.

FRUIT GARDEN.

There is considerable art in raising fruits; but there is as much or more in gathering and ripening them. Pears and apples are ready as soon as the seeds begin to turn black, or as soon as they will part easily from the tree by gently raising the stalk, or as soon as the leaves show indications of falling from the trees; indeed, whether they are duly ripe or not, no length of time will avail them aught after the leaves fall. No rules can be given for the exact place to put them away in, but the principle must be applied to each individual case. In the first place, the fruit-shelves must be secure from frost. In the next place, it must be just moist enough to prevent withering, but not too much so, or the flavor will be inferior. Nor must it be too hot, or your fine *Beurres* may become *Fondantes*, or resemble cooked *Pommes des terres*, alias boiled potatoes. If it is too cold—barely above the freezing point, the fruit becomes insipid and tasteless. The happy idea is to strike central to all these extremes. Of course, they must be hand-picked from the tree, as the slightest bruise causes decay. The stock must be occasionally overhauled anyhow to take out such as will be found, from various accidents, in a decaying state. Apples, for commercial purposes, are usually barrelled up, with chaff or other light substance between each layer; and some pears, such as Lawrence, will bear the same treatment; but such preserved fruits are never equal in quality to those preserved in a more open way on shelves.

We may, perhaps, repeat the advice to plant considerably more fruit trees together on the same space of ground than is usually done, even though some has to be cut away in time. This should especially be in the case where parties prefer to keep the surface soil clear; as the intense heat reflected from bare soil is one of the great sources of disease in young trees. It might be well to introduce nurse trees into orchards, to obviate this somewhat. Alders, Poplars or Willows might, we think, be used to advantage; of course, cutting them away before they grew large enough to interfere with the roots of the fruit trees. A dry warm bottom, but *cool surface* is of the highest importance in fruit growing.

The past season in most parts of the country has been one of very abundant bearing, and unless the food has been kept up by a liberal supply of manure, there will be many weak and exhausted trees, and short crops next season. We prefer to manure, in such cases as these, in midsummer. The cells of trees are like honey-combs, and store up matter for use the next season. They have of course to do this while growing. Whenever this has not been done, matter for a surface dressing should be got ready during autumn and winter. Much injury has been done to fruit culture by the expressed dread some cultivators have of a "two rank growth," and a consequent advice not to manure. A fruit tree never suffers from too much manure, if the roots are healthy. If a tree seems to suffer after a heavy manuring, it is only that it was in a bad way before this. Of course, if one were to empty a cesspool, a cart load of fresh lime, or some other inordinate mass of food under a tree, it would suffer; but our meaning is that no amount of manure that would be found of benefit to any regular garden, will be otherwise than beneficial to a fruit tree, *if the roots be healthy.*

VEGETABLE GARDEN.

Celery as it grows will require earthing up, and endive successively blanched; but the main business of the month will be preparations for housing the root crops for the Winter. Beets are generally the first thing attended to, they being the most easily injured by frost; Carrots, Salsafy and Parsnips following. The latter are never really good until they have been well frozen; and many leave them entirely in the ground, taking them up as wanted for use. We prefer taking them all up and packing them in sand or half dried loam, in a shed or cellar, which can be kept just above freezing point; yet the cooler the better. If suffered to be in heaps they heat

and soon rot. In the same situation Endive and Cape Brocoli may be preserved to the end of the year—they are taken up with a small quantity of earth adhering to them, and placed side-by-side together. Tomatoes, if dug up also, and suspended, roots upward, in such a situation, will keep good a long time; but this must be done before the least frost has touched them. It is a wise plan to sow a little more Early York Cabbage early in the month, as in fine mild winters the September sowing grows too forward when protected. A very slight protection is better for them than any elaborate affair, the sun principally injuring them. The same remarks apply to Lettuce intended to be kept over winter for spring use, though the sun is less destructive to them than to the cabbage.

Forcing vegetables, wherever the least command of heat can be had, is the most interesting and useful part of gardening. It is not by any means what it is often considered, an operation by which you pay a dollar for a mouthful. The Asparagus, Sea Kale, Lettuce, Radish and Cauliflower can be had for months earlier than in the open ground, wherever a regular temperature of 55° can be obtained, with, of course, the proper amount of air, moisture, &c. Asparagus can be had under a greenhouse stage, though of course the tops will not be so green, nor will it be much else but indifferent under such circumstances, as it would be in full light.

Radishes require an abundance of air, and Lettuce light. Cauliflowers, if kept for some months with all the light and air possible, at a temperature of 50 or 55°, may have it gradually raised to 60 or 65°, and even 70°, and thus come into use in February, when there is no vegetable more desirable.

Cucumbers, Tomatoes and Beans require a temperature of at least 65° degrees to begin with. If a temperature of 70 can be maintained in the coldest weather, a few of these might be sown by the end of the month, which will produce some very acceptable dishes about New Year's day. Rhubarb, if carefully taken up at the fall of the leaf and potted, or put into boxes, will also come forward well if put under the stage in a house of the last temperature.

COMMUNICATIONS.

ADDRESS OF MARSHALL P. WILDER,

AT BOSTON, SEPTEMBER 10TH.

GENTLEMEN OF THE AMERICAN POMOLOGICAL SOCIETY:—With the close of this session a quarter of a century will have elapsed since the establishment of our national association.

Most heartily do I congratulate you upon the pleasant circumstances under which we are assembled, and upon the progress and prosperity of our society. We meet on this occasion not only to assume the labors, discussions and duties incident to another biennial session, but to commemorate by appropriate exercises a period which will ever be memorable in the record of our existence. We accept with great pleasure the cordial welcome extended to us by the Massachusetts Horticultural Society, whose liberality has made such ample provisions for our accommodation, and while acknowledging these courtesies we desire also to express our obligations to the Massachusetts Society for Promoting Agriculture, and to the gentlemen who with them have presented funds for the promotion of our cause.

Nothing could be more grateful to my feelings than your presence at our old homestead, and in my own behalf I bid you welcome to the privileges and enjoyments of the occasion. We meet as representatives and co-laborers from different and widely distant sections of this great republic. We come from various districts, but with no other rivalry than a laudable ambition to promote a great industrial pursuit, whose salutary influences are for the benefit of our common country. From whatever section you come—whether from the sunrise or the sunset shores of our continent, from the Dominion of the North, the valleys and prairies of the great Central West, or from the broad plains and hill slopes of the sunny South—I extend to all a hearty welcome to our time-honored metropolis of New England.

Especially do I welcome you to our own beloved Commonwealth, the home of the Pilgrims, where our fathers planted the germs of a civilization which we believe will ultimately be extended to the remotest nations of the globe. Here the tree of liberty was planted, under whose genial

shade our whole land now rejoices; and here Concord, Lexington, and Bunker Hill rear their monuments of historic fame, to remind us of the priceless blessings we enjoy. Here were the gardens and orchards of Gov. Endicott, whose pear tree at Danvers still survives the revolutions of two hundred and fifty years. Here at Marshfield are the relics of the apple tree planted by the first male child born of the Pilgrims. Here on Boston common were the orchards of William Blackstone, the first settler. Here were the gardens of Gov. Winthrop, of golden pippin renown, and here a later date the gardens and orchards of John Hancock, the first signer to the Declaration of American Independence, Gardiner Green and others, from whence were disseminated some of the first fruits introduced into this country from the mother land. Here is the home of the Massachusetts Society for Promoting Agriculture, of whose munificence I have before spoken; the home of the Massachusetts Horticultural Society, under whose auspices we meet, both of which institutions were the second of their respective kinds established in America. In this vicinity were the fields of labor, of Lowell, Dearborn, Manning, Kenrick, the Perkinses, Downer, and other early pomologists, and here are the homes of many now living, whose names will be remembered as promoters of our cause when they also shall be gathered to their fathers. Here within the limits of our city were planted the first Bartlett, and the first Flemish Beauty pear trees imported to this country, both of which survive to this day. And here the Dix, the Dearborn, Dana's Hovey, Clapp's Favorite pears, and the Downer Cherry were born. And here within a few miles were originated the Hovey's Seedling Strawberry, the Concord, Diana, and Roger's Hybrid grapes.

Many of those who participated in the formation of this Society, and to whom we are indebted for much of its success have ceased from their labors, and gone to receive their reward. But I am most happy to recognize among those present, to-day, some of the noble pioneers, who aided in the establishment of our Society, who rocked the cradle of its infancy, and who now rejoice with us in the grand development, which this day witnesses. We recognize, also, many others, who in later times have contributed and shared with us in this march of improvement, who like them have stood as faithful sentinels on the watch-tower of duty, whose efforts to advance our objects will demand and receive, in coming time, the thanks of millions of grateful hearts. To no one is this occasion of more interest than to him who, by your kind indulgence, has occupied this chair for so many years, and who, in the course of nature, cannot again witness the assembling of its members in this city of his home. With feelings of no ordinary gratification, we receive you here, where some of the first efforts were made in the cause of fruit culture, and from whence in the early history of our country, as well as in later years, so much has emanated for its extension throughout our land.

HISTORICAL SKETCH.

In my former addresses I have often spoken of the acquisitions and usefulness of our art; but in the presence of so many intelligent cultivators, who from scientific attainments and practical skill have become renowned as teachers themselves, I would not trespass on your time by a repetition of well established opinions, but would rather offer my congratulations on the progress we have made, and draw therefrom motives and inducement to increase efforts and perseverance in our benevolent work.

I have heretofore alluded briefly to the history of our Society, but it might be deemed an omission of duty did I not on this quarter centennial make a record of its origin and progress, not only for the benefit of those present, but for the information of those who are to come after us. I propose, therefore, even at the risk of repeating what may be well known to our earlier members, to place in the annals of our society a page which shall survive when we are gone. Thus shall we "bind fast and find fast" the record of our times.

Briefly then, let me state that the idea of a pomological convention appears to have occurred to individuals in different States, at about the same time—as new ideas in regard to progress frequently do. Thus, in the summer of 1848, consultation was had with Andrew Jackson Downing, the great American landscape gardener and editor of the *Horticulturist*, then on a visit to the city of Boston, in regard to a chaotic condition of our pomology—the want of accurate and well defined knowledge of our fruits, whereby correct conclusions could be drawn as to their various merits; the best means for improving the condition of fruit culture, and the expediency of establishing an American society, so that, by interchange of experience, more cor-

dial intercourse and by general consent, we might preserve those fruits which were valuable, discard those which were worthless, correct the confused nomenclature, and establish a pomology for our whole country. To establish such a society was a great work, but it was considered as the only means which could accomplish the desired object. A correspondence was immediately opened with some of our prominent agricultural and horticultural societies, and with the leading nurserymen and pomologists of our land. This resulted in the proposal of the American Institute of New York to have a convention held under its auspices in that city. Pursuant to these arrangements a circular was issued signed by committees of the Massachusetts, Pennsylvania, New Jersey and New Haven Horticural societies and the American Institute of New York, proposing to hold a "Great National Convention of Fruit Growers" in the city of New York, October 10, 1848.

Of the fifteen persons whose names were appended to this call, three only remain. All the rest have joined the great procession of the dead.

The convention met, and the Society was organized as the "American Congress of Fruit Growers," by the choice of Marshall P. Wilder, as President, a Vice-President from each of the several States represented, and three Secretaries. Of these S. B. Parsons and P. Barry are here to-day.

The first national pomological assemblage solely for the consideration of pomological subjects, met at Buffalo, Sep. 1. 1848, at the call of the New York State Agricultural Society, and after an interesting session resolved to perpetuate itself under the name of the "North American Pomological Convention." But it was plain that there could be but *one national* organization that could carry due weight. A conference was therefore had, which resulted the next year in the consolidation of the two associations under the name of the "American Pomological Congress." The first meeting of the united associations was held at Cincinnati, 1850. In consequence of a death in the family of the president, he was absent, and Dr. W. D. Brinckle was chosen to preside, but at the next meeting declined a re-election, and the present incumbent was again called to the chair, which he has occupied to this date.

Its sessions, since the first three, have been held biennially. There have been three in New York City; one in Cincinnati; three in Philadelphia; three, including the present, in Boston; two in Rochester; one in St. Louis; and one in Richmond. The first session at Philadelphia, in 1852, will ever be memorable as the occasion when a eulogy was pronounced by the person who now addresses you, on Mr. A. J. Downing, one of the chief projectors of the society, whose sudden death had occurred a short time previous. At this session a constitution and by-laws was adopted, and the name was changed to the American Pomological Society.

PROGRESS.

We hail the present anniversary as one of the most interesting in our progress, commemorating as it will the history of this Society from its infancy to its present stature of manhood. Nor can language express the grateful sensations which I experience, that my life has been spared to this time; that I have been permitted to witness the rapid growth and increasing influence of our institution; and that you have so kindly consented to come once more to the city of my adoption, to my own home, to celebrate with me the silver wedding which after so long a service has still found us united in the bonds of affection and regard There may be, and probably will be, periods in the future history of our Society, when equal or greater progress will be made, but it is a peculiar and grateful privilege to be able to record what has already been accomplished; to look back to its early beginnings; and here, perhaps for the last time to join with you in congratulations on its success, and to look forward with confident hopes to the time when every section of our wide spread territory shall be embraced in our association, and our standard of pomology be established throughout the Western continent.

The marvellous growth of our country has constantly been opening up new states and territories for fruit culture. These have been embraced within our fold, thus bringing together the wisest and best cultivators, and combining not only the men, but the fruits of our rich and varied clime, and States which had no place in our Union at the formation of this association, have become the most fruitful in resources. Thus we have gone on, step by step, encouraging whatever was worthy, rejecting what was unworthy, treasuring up the best information, and promulgating, for the benefit of our whole people, the results of our wide-spread reseaches.

Few are aware of the great revolution which

has taken place in fruit culture since the establishment of this National Pomological Society, or of the laborious efforts of those patient pioneers and investigators who have spent their lives for the promotion of our art. Nor can we omit here to acknowledge the influence of the press, to which we are so much indebted for the dissemination of our experience. Some are now living who can remember the time when there was not an agricultural or horticultural paper, or a book on fruit culture, published on this continent. Look back and compare that period with the present time, with its flood of books, newspapers, and periodicals which are wholly or in part devoted to the spread of pomological knowledge, and we shall appreciate the great advantages arising therefrom. Many of those present can remember the time when there were but few apples sent from our Western States to the Eastern coast. Compare this with the thousands of barrels of fruit that are now annually sent to the markets of the East. But time would fail me were I to enumerate the vast quantities of pears, peaches, grapes and small fruits which come from the Western, Southern, Middle and Pacific States to our great Northern and Eastern cities. Some are present who can remember the time when there was not a nursery of any note west of the Hudson river, where now, as from the great commercial nuseries at Rochester, Geneva and other Western cities, there are annually sent out millions of trees and plants to other sections of the Union.

The thought, therefore, which most impresses me on this occasion is the rapid progress in American pomology, the beneficial results which have arisen from the establishment of this national institution, and the duty of perpetuating and preserving it for all coming time. No modern event connected with the culture of the soil, and the sanitary condition of our people, has been fraught with more salutary effects than the establishment and operations of this Society. The more I reflect on its benign influence in promoting the wealth, health and happiness of the nation, the more am I desirous to do what I can in my day and generation for its advancement. True, much had been done by the Pennsylvania and Massachusetts Horticultural Societies, the leading pioneers in the east, to open the way for this new epoch in the fruit culture of our country. Much has been done by other associations and individuals, in the way of co-operation, but here was a new departure, here was a union for concerted action, which should thenceforward embrace every section of our constantly increasing territory. How grateful to the feelings of our departed associates, could they have seen the growth and influence of our Society! How would the hearts of Downing, Brincklе, Walker, Hancock,—not to speak of the living,—have swelled with joy could they have seen, as we now see, the progress of fruit culture in our land, and the prospect which is opening up in the great future of our science.

How striking the progress in our own day! It is not fifty years since the first Horticultural Society was established on this continent. It is but half that period since the formation of this, the first National Pomological Society in the world. And what do we see in the grand cornucopial display of to-day? Not merely the fruits confined mostly to the Eastern States, where our exhibition is held, but the fruits of almost all climes of the habitable globe—here in council are assembled the representatives of our wide-spread territory laden with rich experience and with precious fruits, far excelling the fabled gardens of antiquity.

Here the Canadas, Nova Scotia and New England warm to the genial influences of the sunny South; here the great Central West responds to the East; here California, with golden fruits more precious than her golden sands; here peaceful Kansas brings her crimson fruits; here youthful Nebraska, representative from the great American desert, where sixteen years ago not a fruit tree had been cultivated, comes with her car of precious products and with her Governor at the head; and here from territories, where but a few years since the track of wild beast and the trail of the wild man only marked the soil; to-day, in this northern clime of granite and ice, on this rock-bound coast, we meet as representatives of a united and prosperous people, to rejoice together in a jubilee crowned with fruits surpassing those of any other nation of the earth. Such is the progress of American pomology; such the harvest we are permitted to reap; such the fruition of our fondest hopes.

But who can even estimate the progress of our art, the importance of this industry to our nation? Whose prophetic eye can survey the grand expanse which is to open on our course during the next twenty-five years? Ere that time shall have arrived much of the unoccupied territory of our country, now greater in extent

than that of all our present States, will by the aid of our trans-continental railroads be opened to cultivation, and Columbia river, Puget Sound, and the whole Pacific coast, with its untold treasures, be united with us in the great work of promoting the pomology of this land. Give us twenty-five years more, and from ocean to ocean, from the Dominion to the Gulf, our hillsides shall be clad with the vine, our great valleys adorned with orchards and gardens, and the fig, olive, orange, of the South and Pacific shores, shall rival those of exotic growth. Give us twenty-five years more and our catalogue of fruits shall be filled with native varieties, and dedicated to American pomologists who by their labors and benevolent efforts have contributed to the wea'th of our country and the happiness of its people.

(*To be continued in November number.*)

ADIANTUMS.

BY MANSFIELD MILTON, NORTH EASTON, PA.

Maiden-hair Ferns are universally admired. No genius of ferns being more graceful in character or better adapted for growing in glass cases than some of the species, and none excels them in the formation of bouquets. The culture of a good many of these species is very easy, and no collection of plants but ought to contain a few of them. They are propagated from spores and by divisions of the root.

Propagating from spores is the most interesting of horticultural operations. I shall give a few remarks upon the mode generally practiced, which may be applied to all ferns grown from spores.

Mix a compost of small lumps of peat, charcoal, broken pieces of pots and a good quantity of fine sand; take six-inch pots, give good drainage, and fill to about an inch of the rim with this compost, give a thorough watering, then scatter the seeds or spores evenly over the soil, laying a piece of glass on the rim of the pot, and set the pots in pans containing about an inch of water, placing them under the stage of the greenhouse, or in some shady place where moisture and heat are plentiful. Change the water in the pans occasionally, and thus prevent the soil from souring.

On the surface of pots, on moist walls and under stagings of houses where ferns are grown, young plants will continually make their appearance. If those specially grown in pots, as also those coming up spontaneously through the house, are planted into flats about an inch apart, as soon as the first frond appears, and allowed to remain until large enough for potting singly into thumb pots, then judiciously managed by shifting regular, and otherwise treating properly, will soon attain large specimens.

Adiantums thrive best in a soil composed of three parts peat, and one part good fresh loam, with plenty of white sand. Allow the compost to lie a few days previous to using. Give pretty large pots with plenty of drainage, which should be done thoroughly, as good drainage is indispensable to all plants requiring a good supply of water. Although a class of plants the foliage of which repels water, a good many species are very impatient with much syringing over-head, especially the *Trapeziforme groupe*, the foliage of which gets black with too much of it.

The following are some of the most beautiful and easiest cultivated:

A. assimile.—A beautiful evergreen species with dark green foliage, from Australia, of easy culture, requiring shade and plenty of moisture. As the centre of large plants is apt to get open, it is well to divide the plants and grow in medium sized pots for handsome specimens.

A. cuneatum,—The best known of the Maiden-hair Ferns, and one of the most useful for bouquet making, and easy culture, native of Brazil.

A. colpodes.—Another beautiful fern for cutting, requiring more heat than the preceding, being a native of Tropical America.

A. concinnum.—A beautiful fern for exhibition, having a drooping habit and very distinct, variety *lætum*, is a good deal superior in habit and general beauty. Requires plenty of heat to see its real loveliness.

A. excisum multifidum.—A garden variety making a handsome plant when well grown, suitable for bouquet making; the *apex* of the frond is divided, forming a beautiful "tassel." It does well in greenhouse temperature, but attains a looser habit when grown in a stove.

A. Farleyense.—The most magnificent fern in cultivation, having broad pendulous fronds, the sterile pinnæ being beautifully fringed. Although only introduced into England from Barbadoes in 1865, some superb plants of it are possessed by several of the London nurserymen, but two plants in the excellent collection of Mr. Such, New Jersey, are said to equal any in cultivation. Too much praise cannot be given it.

No one can see it without admiring its gracefulness; and none having accommodation for growing, ought be without a plant of it.

A. formosum.—A fine greenhouse species, easily grown, and admirably adapted for cutting and exhibition purposes.

A. fulaum.—Another early cultivated fern from New Zealand.

A. macrophyllum.—A handsome hothouse fern from the West Indies, having large erect growing fronds, the pinnæ being a faint pink when young, changing to dark green.

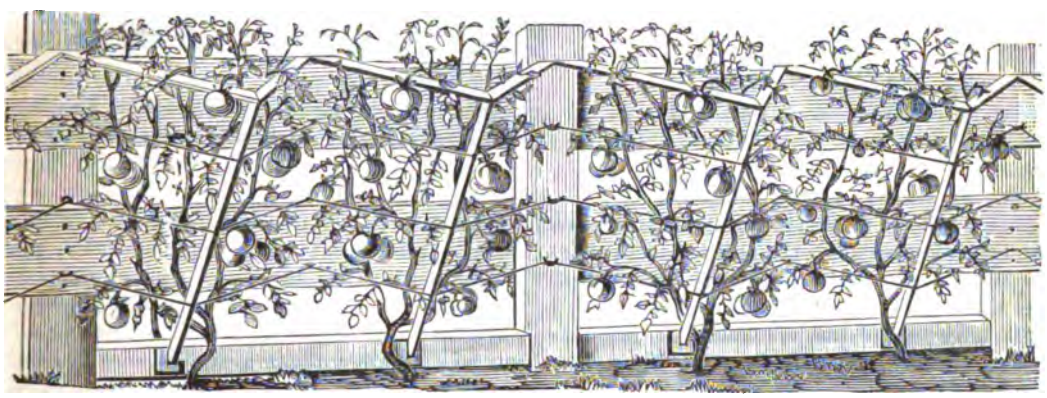
A. tenerum.—An evergreen hothouse specie with large fronds, growing very strong with plenty of heat and moisture. From the spores of this specie, *A. Farleyense* and *A. Gheesbrighti* are supposed to have been raised.

A. trapeziforme var. Lanctæ Catherinæ.—A noble fern of easy culture, beautifully adapted for decorative purposes, requiring a brisk heat when sending up its fronds, but will do remarkably well in a greenhouse temperature. Great care should be taken not to syringe over-head, as it causes the pinnæ to get black; nor the the young fronds to be handled, as it destroys them.

TOMATO TRELLIS.

BY A GREEN CITY FARMER.

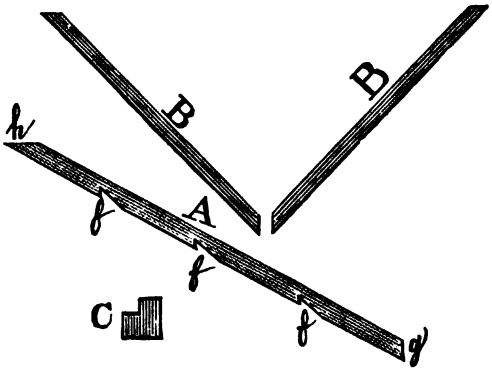
Any city yard with a fence in southern exposure, may have a beautiful and useful addition to its attractions, in the simple fixture represented in the following drawing. The sketch endeavors to show how the vines do the work of supporting themselves, if the trellis is made to their liking. In full season, the effect of the ripe tomatoes and green vines neatly suspended in the sun, rivals a flower garden in brilliancy. We have had it in use five years this season.

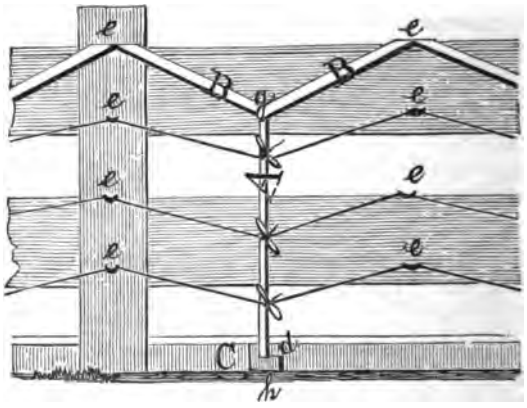


The plants seldom require handling during their growth, each vine being supported by the wires of its triangular section or cage, aided by its own co-operation. By the time the young plant reaches the first wire,—one foot from the ground,—enclosing the narrow part of the cage, it is getting weak in the knees, and is just ready to settle itself down preparatory to those contortions it undergoes in the uncivilized state. But, the support being offered, its arms fall across, and rest with relief on this first wire, when its habitual gyrations are postponed until it is a little taller. When this age arrives, it would fain settle down again into round shoulders, like a too fast growing boy, but his arms fall on the second wire, enclosing a larger space adapted to his increased size, and the awkward disposal of limbs peculiar to this period of youth. Then the young fellow rests his weakness, and takes a new departure. By this time he has branched considerably—several arms doing duty over these welcome supports. When the third wire and much increased space is reached, he begins to fill up the triangular cage, seeming to "feel his oats," and to have acquired the habit of knowing what to do with his numerous limbs, now resting on and over the wires in every part. "Train up a child in the way he should go, and when he is old he will not depart from it." Accordingly the full grown plant, soon reaching the last and widest story, formed by the two surmounting wooden braces, leans his weight, strength, experience and many armed resources thereon, with a mature expression of having performed a work well done; being willing to be judged by the fruits hanging now for weeks,

in all stages of development, from greenness to red perfection, in full view of sun, against a dark green background. If the right exposure of this trellis should chance to be in view of your dining room windows, no scene could be more suggestively in keeping with the deeds done in that apartment. The fruit is convenient and fresh for a cool table relish; and your wife will say "it is much better than buying stale tomatoes out of a cart."

We dont set up to teach the readers of the *Gardener's Monthly* much that is "new and strange" about farming, which art we know nothing about, having only succeeded in inveigling a gawky, but right down companionable vegetable, out of its sprawling country habits, into the observance of ways that fit it for city behavior and address. We may add, that he has also perceptibly gained a cultivated *taste* in course of his bringing up. The following sketch shows a section of trellis and the pieces:





Make, and set up the trellis as follows: Get full length lumber from the mill sawed in strips one and one-fourth inch wide, by three-fourth inch thick, and in quantity for required number of uprights in the trellis. Cut these into four feet lengths for uprights A, bevelling the ends to square, when upright stands at 30° perpendicular. This cuts the lower bevel *h* at sharper angle than the upper one *g*. The pieces B are made of lighter stuff one and one-eighth inch wide by half an inch thick; or, from very strong laths. Cut these into about two feet nine inch lengths and bevel ends, to square together on *g*, and the other ends to adjust against fence at distance of three feet. The pieces C are one-fourth inch stuff, cut as indicated for cleats or studs to serve as lateral bearings, when uprights A are being nailed to fence, as well as for firmness and solidity to trellis.

Lay off your fence in spaces, enclosed by perpendicular lines three feet apart, dividing into as many spaces or sections of fence as you have plant-room. On each line mark four points, *e* one foot apart,—the lowest point one foot from ground. Also mark another point *d* in every section, two inches from ground, half way between,—thus alternating at eighteen inches between the perpendicular lines. At each point *d* set one of the cleats C with its inside angle on the point: nail C with two brads to the fence. Set the uprights A at their ower bevels *h* against the fence in the angle of C, driving two nails through end into the fence, which sets A at about 30°. Nail the braces B,—two brads in each, to the top of A at *g*, their bevels squaring together: nail their other ends to the fence at the uppermost points *e*, and resting on small strips of wood on fence for bearings. These ends lap the ends of their neighbor braces of sections on either side.

You have now a moderately firm frame. The wires have yet to be added, not only to make it a *trellis*, but to give the whole job its strength and solidity; binding each section, as well as the whole series together. You have up as many sections of these three pieces each as you have spaces for plants, and, if the row has been systematically constructed, the points *g* at ends of uprights are all sighted in line. Now drive staples at the three other points *e* on the left of

trellis; to each staple attach the end of a No. 15 galvanized wire, and of length sufficient to go unbroken to end of series.

Having notched the uprights A at the points *f*, as represented in cut, at the same level as the several points *e*, draw your wires from *e* tightly over the notches, carrying them down to fence at the next points *e*,—at each of which, as you go, drive a staple, the wire sliding under it. Draw wire tightly at each notch and staple, and so on successively to end of trellis, fastening ends of wires at the last staples.

You have at last a very light, neat, strong and solid trellis of wood and wire entirely clear of the ground, suspended on the fence, and lasting for years. It is also cheap, especially to the man who is handy about house, and likes to be his own journeyman.

The lower wires form a small space for the young plant, the second and third wires, and top braces successively larger, to accommodate the growing vines.

Set the young plants near the fence and close to the foot of uprights, one plant at each. They will do the work of supporting themselves on the trellis as they grow, without ever being tied, and require no further care—if any—than laying a stray branch now and then over the wires as you pass. The beds are made up each season without disturbing the trellis. The growing plants, on this congenial support, are more self-acting than a grape vine, and the temptation is strong to head this sketch, "The Au-*tomat*-ic Trellis," which it strictly is; but we refrain, fearing the suspicion of an intended pun, a levity too unseemly for the staid pages of your magazine.

DUDLEY W. ADAMS AS CANDIDATE FOR GOVERNOR OF IOWA.

BY G. W. THOMPSON, STELTON NURSERIES, NEW BRUNSWICK, N. J.

It gives me such pleasure to think that the *Gardener's Monthly* is always right, even when he talks heresy in orchard culture, that I am sorry you seem to indorse the nomination of D. W. Adams as Governor of Iowa. Now you know that they can make a governor out of almost any kind of stuff, and make almost anything out of him when he is used. Not so with the leader of a great popular movement—he requires to be trained in just such a school as Mr. Adams has been learning in. Mr. Adams is the right man in the right place where he is; and though I have no doubt he would be the right man as Governor, he would be in the wrong place.

History will award him a higher niche in the fame-temple, than is generally awarded to governors as such, besides it would, I humbly conceive, be a calamity to the great cause he has so heartily espoused, should he accept the gift.

The "I-told-you-so" croakers would then have their wish; they have been picking at this Association ever since its formation. I suppose they did not let you into the secret, at the Richmond Convention,—the late Master of the National Grange, Hon. W. Saunders, has espoused the cause of the Patrons of Husbandry, in order to step right through it into the Commissioner of Agricultural office.

I will not attempt a defence of Mr. Saunders,—history will do that; and can bide his time,—suffice it to say he held the office with credit to himself and advantage to the Order; and laid it down with a self abnegative dignity, appreciated by his associates, and which is not burdensome to those who tried to traduce his motives in espousing the cause of the farmers of the country. Whatever the croakers may say, Mr. Saunders, and successor, Mr. Adams, may have the satisfaction of knowing that brain is necessary to a conservator, or the leader of a great popular movement; but not always a prerequisite in a Commissioner of Agriculture or the Governor of a State.

[We had no idea that what we said of Mr. Adams, would be taken either for, or against his nomination as Governor. The *Gardener's Monthly* endeavors to steer clear of all these questions. Its mission is simply *horticulture;* and whether a man is a Patron of Husbandry or a monopolist, a northern man or a southern man, a Jew or a gentile, a mormon or shaker, a republican or democrat, if he is but a good horticulturist, our magazine regards him as a friend and brother, and wants to take him by the hand. We have at various times stated that Col. Colman was spoken of as Governor of Missouri, Col. Furnas of Nebraska, and Mr. Adams of Iowa; and have referred to their horticultural reputations equally, yet we believe they are all of different politics; and, if the *Monthly* had any politics, it could not "endorse" them all. The fact is, we rejoice whenever any one in authority is fond of flowers; and, however much the editor may differ in politics with a candidate

for office, is "almost persuaded" in an election to go on the side of the one who loves the garden.

If "history" needs any writings in regard to the motives of Mr. Wm. Saunders in "espousing the cause of the Granges," the editor of this journal stands at all times ready to testify to the fact that the "Commissionship of Agriculture" had no place in Mr. Saunders' mind. The editor believes he was among the first consulted in regard to the proposed establishment of this Order. He did not give in his personal adhesion, because he wished and wishes to keep the *Gardener's Monthly* clear of all connections with any special bodies which might possibly be thought to influence its independent course; but, the confidence placed in him at that time, enables him to feel sure in stating that Mr. Saunders' great idea—not in "espousing" but in being chief founder of the Order, was simply the interests of agriculture. Others may have different views, but we do not believe he had. And in regard to the commissionship of agriculture itself, we may say that there has never been a change in the office talked of; but we have been approached by people to use what influence we might have in the *Gardener's Monthly*, and observe in their behalf for the position, but never once by Mr. Saunders. On the contrary, when his name was once used by some newspaper in connection with the office, he assured the writer he would prefer to be as he was.

It is a matter of no consequence to the *Gardener's Monthly* whether Messrs. Saunders or Adams are connected with the Patrons of Husbandry or not, but they are capital horticulturists, and on this ground it affords us the greatest pleasure to say a good word for them, when we truthfully can.]

RAPID POTTING.

BY PETER HENDERSON, JERSEY CITY, N. J.

In your September number, Mr. H. E. Chitty, superintendent of the Bellevue Nurseries, Paterson, N. J., says in substance that it is impossible that the number of Verbenas—ten thousand in ten hours—which I stated as having been potted by one of my workmen, James Markey, on the 8th of May last, could have been done well. They were done so well that nearly all were sold in four weeks from the time of potting, with a loss of less than one per cent. dead in the whole lot.

As I stated before, Markey's average work is five thousand per day,—of some things he accomplishes more, of some things less; for instance to-day, I find on examination, he has potted nearly seven thousand Smilax plants in two and one-quarter inch pots, to-morrow, should he be potting Rose cuttings, he probably will not run over three thousand. Markey's work is nearly exclusively that of potting off cuttings, and has been so for the past three years. May be I am not so able to judge of what is "well done" in potting, as the superintendent of the Bellevue Nurseries, but I am vain enough to think I am.

Mr. Chitty says that in potting off cuttings, it is necessary to make proper "disposition of the roots," which I suppose means that the roots require to be spread out. This we might grant if the propagator did not know enough, or was careless enough not to pot off his cuttings, until the roots became so long that they needed spreading; but any propagator that properly knows his business, will pot off as soon as roots are emitted, never letting them be longer than an inch when possible. And in many soft wooded plants such as Geraniums, there is no necessity for waiting until the cutting is rooted in the bench at all, when well calloused they root just as quickly in the small pots.

The wonderful work of this young Irishman—who has had no more experience than an American training—has roused the ire of numbers of gardeners, who, because they have happened to graduate in Europe, and yet find that with all that, they have never yet been able to quite pot ten thousand plants in ten hours, affect to believe that either the feat was not done as stated, or else if done, was not accomplished in a workman-like manner.

It is nothing more than an extraordinary gift of rapidity of movement in the individual, given to, perhaps, only one man in ten thousand, just as we get a Webster in the forum, or a Beecher in the pulpit once in a generation; yet then it did not help hundreds of envious would-be orators, snarling at the "God-like," nor to-day does it prevent thousands of small-souled, but truly orthodox parsons spitting venom at the Great Preacher.

TREATMENT OF THE AMARYLLIS.

BY CONRO KRETCHMAR.

The different sorts of Amaryllis are indisputably the most beautiful, and by far the most grateful in returns of bulbous plants for the green

and hothouse. These are also well adapted for the sitting room. The finest kinds can be brought into bloom there, and often in the winter season, when every flower is of double value.

The Amaryllis has, like the Dracænas, Aletris, Charlivodia, Cordyline, Dianella, &c., been divided by Botanists according to their diversity in the formation of flowers, the pollen of flowers, the seed capsule, &c., &c., into different genera, viz:

1. Amaryllis (Amaryllis Belladonna.)
2. Ammocharis (Ancoranica.)
3. Brunsrigia (Amaryllis Josephine.)
4. Buphone (Amaryllis toxicaria.)
5. Coburgia (Amaryllis seticulata.)
6. Hyppeastrum (Amaryllis Reginæ.)
7. Lycoris (Amaryllis aurea.)
8. Nerine (Amaryllis sarniensis.)
9. Oporantheus (Armaryllis lutea.)
10. Spreclia (Amaryllis formosissima.)
11. Strumaria (Amaryllis Crispa.)
12. Vallotta (Amaryllis purpurea.)

Notwithstanding the many strictly divided or classified genera, they are to the florist and amateur, in all their varieties, a favorite flower.

Only a few species preserve their leaves through the whole year. Most of them have a period of rest, which is absolutely necessary to the perfection of a free and luxuriant flowering. The different sorts do not approach their rest at the same time,—some entering upon it in summer, others in winter. It requires only a little attention to discover this. When no more new leaves are seen, and the old ones stop growth, by degrees become enfeebled and lose their succulent green, or begin to turn yellow at the leaves, is the time of rest at hand.

If these signs are observed, watering should be withheld by degrees; and when the leaves turn yellow and wilt down, they must be deprived of it altogether. When arrived at this state the pots containing the bulbs should be put on a back shelf in the green, or hothouse, or any other suitable place where they are out of the influence of the sun. They should be left there till a new growth takes place, which can be discovered in the appearance of new leaves, or a flower-bud and stem; the latter, in some sorts, making their appearance before the leaves. Then is the time to repot them. Take the bulbs from the pots and shake out all the soil from between the roots. Care should be taken not to break or wound the latter, or it will hinder their activity in growth, or bring on decay of the bulb. All sound roots should be left untouched, but the dead, rotten or damaged should be cut off with a sharp knife. As soon as the earth has been removed, and the bulbs cleansed of all useless and dead skins, they should be replanted. For this purpose use 6 or 7-inch pots. Put a handful of bits of broken pots at the bottom and cover them with soil made up in the shape of a hill of the proper height, to receive the base of a bulb. Place the bulb upon it, and spread the roots evenly on all sides of it, holding the neck of the bulb with one hand, and filling in the soil with the other. Give the pot a slight shaking to settle the earth among the roots. When the pot is full, the earth should be pressed down gently, so as to leave a space of half an inch between it and the top of the pot for the reception of water. In planting, the bulb should be set so that the neck rises high above the ground; and the longer the neck, the more necessary this arrangement, so as to bring the strong influence of the sun upon the bulb, which is needful for the formation of new flower germs.

With respect to the soil, the Amaryllis does not make as strong claims as many other species of plants. However, this rule must be strictly regarded, that no fresh undecomposed vegetable or animal matter be mixed with it, as the consequences would be the rapid decay of the bulb. The best compost for the Amaryllis is well-rotted turfy peat, or a mixture of loam and leaf mould, or hot bed muck. To each add a good quantity of sharp, white sand.

The watering of the Amaryllis should not be done in an indifferent way, but must keep equal pace with their growth. With the exception of evergreen species, they should not be watered at all during their periods of rest. When the bulbs show sign of new life, and are already repotted, if there is some moisture in the earth, do not water them for the first few days. If the soil gets very dry, or is dry already, when potting the bulb pour a little water around the edge of the pot, but do not moisten the bulb itself. In general they should be watered so that the water enters the earth near the outer edge of the pot, and never *over* the bulb, as only the ends of the root, and not the bulb itself, absorb the water, and such nutritious substances as are dissolved by it. If the growth is rapid, an abundance of water should be given. Once or twice a week a thin solution of sheep manure may be given, or horn chips, or scrapings from the combmakers worked in the soil. This is done when the roots

are filling the pot, in order to perfect the flowers.

After blooming water should be given according to the growth, and when diminishing, gradually withdrawn till the cessation of growth when the watering should cease also.

The evergreen species should never be allowed to dry out, but must be kept moist, and at their time of growth receive a liberal supply of water.

Except during their period of rest, the Amaryllis cannot be kept in too sunny a place. Their perfection, namely: a plentiful bloom, depends chiefly on the unbounded influence of the sun upon the bulbs. For this reason: whether in the greenhouse, sitting room or open air, the most sunny location should be chosen. The maturity, viz: the formation of the future flower germs is the more completely attained the more the bulb is under the influence of the Sun.

The practice here and there of taking the bulbs out of the pots, and keeping them dry during their periods of rest, is in nowise to be recommended. By this method the roots dry up, and are consequently lost. However dry the bulbs may become in the pot during their periods of rest, still they will not be so dry, but that they will be enabled to start a new growth as soon as they are transplanted into fresh soil; consequently these have a great advantage over those which are deprived of their roots, and which must wait on the favors of time and nature to renew their strength and beauty.

The Amaryllis bulbs are propagated in two different ways. First, by offsets formed on the parental bulb; secondly, by seeds. The offsets are removed from the parent bulb, and repotted singly, or with several in one pot. As soon as they have reached an independent existence, they should be treated as old roots.

The seed should be sown, if the season is favorable, right after their maturity, or in the following Spring. Sow them in seed pans, in a light Amaryllis compost. Water them moderately, and set them in a hot-bed. Keep a close observance of their condition, and see that a soft and equal moisture is preserved, when they will soon germinate. The seedlings require the same treatment as the offsets. If there are no hot-beds where the young seedlings or offsets can be planted out, they may be planted singly in the smallest sized pots that can be obtained. As often as the roots reach the outside of the pot, they should be transplanted to a larger sized one, without disturbing the ball of earth. The less the roots are disturbed, the sooner they will inclose the new earth again, and take their nourishment out of the same. This advice is only a *seeming* contradiction to that given in regard to the older bulbs. The latter commence annually a *new* period of growth, while the young bulbs require a growth uninterrupted, which would be intermitted if the earth was shaken from the roots, thus preventing the rapid accomplishment of their maturity.

Amaryllis bulbs imported either from Europe or their native country, are generally in a dry shrunken condition on their arrival here, and without roots. Their condition would lead many to conclude that they should be placed immediately in the earth, and their growth renewed; but this would be the mistake of ignorance, because it might be in contradiction to the natural disposition of the species. With a knowledge of the nature of the respective species, it is easy to bring the growth of the bulb in unison with its natural period of activity; but if not thus acquainted with its nature, it is best to put the bulb into a pot of loaming sand, and set it aside in a dry place of moderate temperature, where there is no danger of further shrinking in, or of premature dampness. Let their condition be under constant observation; and as soon as the least sign of growth is seen, either in the formation of the roots, or the swelling of the head of the bulb, then is the time to pot and advance the same in a raised temperature, which agrees with them. Bottom heat is best. To such bulbs the smallest pots possible should be given; but as often as they fill with roots, they should be shifted without hurting the roots.

HYBRIDIZATION AND CROSS FERTILIZATION.

BY REV. L. J. TEMPLIN, OF KOKOMO, IND.

The question as to whether the immediate fruit of a union of two different species or genera is effected by such union is one of considerable practical importance, and is worthy of careful examination. In a note in the July number of the *Gardener's Monthly* Mr. Arnold, of Canada, while admitting that in corn the effect is immediate, thinks that in the apple and pear "it is a rare occurrence" for the pulp to be affected. The apple and pear being distinct species, the common progeny of the two is a real hybrid. I think it doubtful whether such hybrids are very often produced, yet that they do occur at rare intervals is a well established fact. Mr. Arnold

himself reported a very interesting case, which was published in the *Gardener's Monthly*, page 43, 1871. Two apples were found growing on a pear tree in the orchard of Dr. Lawrence. These were genuine hybrids in which the pulp of the fruit partook of the nature of the male parent. A case of pears growing on an apple tree occurred on the farm of Mr. Walter, near Englewood, N. J., noticed in the *Journal of Commerce* and afterwards in the *Gardener's Monthly*, page 343, 1872. In this case three pears were found growing on the branch of an apple tree, that grew so near a pear tree that the branches often met when swayed by the wind. The branch was preserved with apple leaves, two pears and an apple on it; the apple being situated between the two pears. In this case the parentage was the reverse of that in the case of Mr. Lawrence. It is probable that such hybrids are produced much oftener than they are reported to the public. At least there seems no good reason why they should not be as often as circumstances combine favorably for their production. The fertilization of one variety by another is perhaps more easily effected, and therefore more frequently occurs; but the change is less violent and consequently less noticeable than where it takes place between two genera. It is not very unusual to find specimens of apples differing from the variety on which they grow, in color, flavor and texture, as widely as some of entirely distinct varieties. Is it not probable that these variations are caused by cross-fertilization? Indeed is it not reasonable to expect that in every case of cross fertilization the resulting fruit should partake of the characteristics of the male, as well as of the female parent to some extent? It is the direct result of this fertilizing influence. The female organs of the plant have no more power to develop the embryo, and produce a perfect fruit, without such fertilization, than has the female animal to bring forth young with out the intervention of a male. In the animal kingdom we find, that when two animals of pure, but distinct breeds, have fertile intercourse, not only is the offspring a cross between the two breeds, but the female herself becomes a cross with the animal by which she first becomes pregnant. In animal hybrids the progeny resembles the male parent in outward form and figure. The mule has the ears, hoofs, tail and color of the ass, while the hinney has those of the horse. If this is the law governing in the animal kingdom, may we not conclude that it controls largely in the vegetable world? The cases cited above prove this to be nature's method in some cases, and, in the absence of evidence to the contrary, I think we may safely conclude that it is her law in the vegetable, as well as animal kingdom. As to the law of *superfœtation*, which Mr. Arnold thinks he has established, I think while he seems on the right track to determine the matter, further evidence seems to be needed to set aside the many objections that seem to lie with great weight against it. Let investigations go or that truth may be discovered and established.

HEATING BY STEAM.

BY N. D. ALLEN, CHICAGO, ILLS.

I have of late become much interested in reading the articles in the *Gardener's Monthly*, on the erection and heating of greenhouses, for growing plants and cut-flowers.

I have ten houses in a body, facing east and west, each 100 by 11 feet,—7 feet in height, warmed by steam pipes running from one flue boiler. The steam is conveyed from the boiler by a 2-inch pipe passing through the centre of the propagating house, under the propagating bench to the farther end of the house, connecting a 2-inch pipe which passes across the end of each house, conveying the steam into 1-inch pipes, which radiates the steam through all the houses.

So far, the heating by steam has been a success in the saving of labor, as it requires only one fire. The required temperature can more easily be kept. The propagating bench is 4 by 80 feet, and every part of it works like a charm. The mercury need not vary five degrees.

During the past long severe winter, with the mercury varying from fifteen to thirty degrees below zero, I have not lost by freezing more than fifty plants, and should not have lost those, but the propagating bed crowded out plants so fast, that I was obliged to put them in houses that were only heated sufficiently to grow lettuce, (with but two 1-inch pipes.)

Heating by steam creates a moist balmy atmosphere well adapted to plant growing, as they look healthy, vigorous, and bloom profusely. A florist who saw them in the winter said that Fuchsias grown in their native climate, under the most favorable circumstances, could not be more luxuriant and healthy than mine—the same could be said of all the plants. I attribute

the result greatly to steam, as I am a novice in the art of plant growing. Why has heating by steam been so ignored by florists?

[Where heat has to be carried long distances, steam will have the preference over any other mode of heating; but for short distances it is thought to be more expensive than hot water, on the idea that it takes more fuel to make steam—than to get hot water to circulate. But our correspondent furnishes good reasons for a suspicion that this idea is fallacious. We would be glad to have the views of others of our correspondents.]

RAISING SEEDLINGS OF TREES, FRUITS, &c.

BY J. M., PHILA.

A short time ago I promised you my experience on seedling raising, and have since been pleased to see my proposed task made easier by the writings of Mr. Wood on "How to grow evergreens from seed." However, I can find enough to say on deciduous trees, and hope it will prove as instructive as has Mr. Wood's writings.

It is a pleasure to know that our people are getting better acquainted every day with this branch of gardening, and that many amateurs as well as professional men, can now increase their valuable plants with good success. I have no desire to work injury to any nation whatever, nevertheless I have always been the most pleased when I have found our own people had raised for us plants we wanted, as cheaply as the agents of foreign houses could offer them for. It has been but a lack of knowledge how to raise seedlings, that made us dependent so long. When once the principle is understood, the rest is tolerably easy.

In transplanting trees it is generally understood that above all things the roots must not be allowed to dry. The moister they can be kept the better the success. The difference is not great between seeds and trees. Moisture in both cases is life, dryness is death. A seed can no more germinate with dry surroundings, than a tree can live similarly situated. It is then but a question of how much moisture each kind of seed requires to be successful with them? Many seeds which ripen through the summer can be kept dry till fall, and some till spring, and sown with certainty of success. Others must have moist earth or sand mixed with them from the start, or they will not grow. It is this knowledge of the requisites of each kind of seed, brought about by long observation or attention, that alone will bring success.

Evergreens will mostly all grow the first season without previous preparation, though they come up quicker if previously mixed with earth; and it is of vast importance to get them up early and have them strong before the weather gets burning hot. Some kinds of evergreens will remain a year in the ground before coming up, or they can be kept in a cellar in boxes of earth for the same time—a much better plan. Such kinds are Buxus sempervirens, Cratægus, Ilex, Juniperus, Taxus, &c. The Mahonia will germinate the spring following its ripening, if kept in moist earth till sowed.

The following kinds, if kept cool till sowed in fall, require no previous mixing with moist earth or sand: Alnus, Acer Æsculus, Ailanthus, Amorpha, Amelanchier ,Berberis, Celtis, Euonymus, Eleagnus, Liriodendron, Laurus, Magnolia, Nyssa, Rhamnus, Syringa, Viburnum, &c.

I would mix with earth as soon as gathered and cleaned, to sow in fall, the different kinds of Cherries, Hickories, Oaks, Chestnuts, Walnuts, Peaches, Plums, &c.

Many persons keep all of these last named kinds in boxes of earth till spring, especially in States where the winters are very dry, for if the seeds suffer from moisture, no matter whether indoors or out they will die; and when indoors, its one's own fault if they become too dry.

Many kinds do very well if kept cool without mixing with earth, and sown in spring—they are, Aralia, Acacia, Anona, Betula, Cassia, Cytissus, Cercis, Catalpa, Calycanthus, Cladastrus, Diospyros, Gleditschia, Gymnocladus, Kolreuteria, Liquidambar, Maclura, Paulownia, Robinia, Salisburia, Sambucus, Sophora, Taxodium, &c.

It is the practice of large raisers to sow no seeds but what will germinate at once, or soon. Such kinds as require a season to start them, are not as formerly sown out and allowed to occupy the ground a whole season to no purpose, but are kept all summer in boxes and sown in fall.

The following kinds should be mixed with earth some time soon after ripening, and kept in a cellar one year and sown in fall: the next spring they will grow finely: Cornus, Crataegus, Carpinus, Chionanthus, Fraxinus, Fagus, Gaultheria, Halesia, Myrica, Pyrus, Prinos, Tilia, &c.

As has been before said, moisture is the main requisite with seeds; and if they get this it does not matter where they receive it. We have known nurserymen to sow fields of Mazzard Cherry in the fall, and quantities of the same seeds which had been kept moist indoor, in the spring. There was no difference in the growth of either sowing, both growing finely. Shade is best for all young seedlings, and essential to many. Where seed-sowing is a yearly business, probably lath nailed together, as has been recommended for evergreens, is best. Where it is carried on but on a small scale, brush-wood or corn-stalks would answer, removing it gradually as the seedlings grow. On the approach of frost cover thickly with some light material to prevent thawing, so as to keep them frozen solid all winter.

EDITORIAL.

SOIL CULTURE.

It will never hurt an intelligent man to know why he does things. Rather will he profit in this, that he can better adapt himself to circumstances. There are in horticulture hosts of practices—all good practices—about which none of us know the reasons, or if we reason at all, reason wrongly; and hence we often do work which might as well be undone for all the good it is to us.

There are innumerable things in greenhouse building and greenhouse warming, in plant growing and fruit culture, the labor on which is absolutely thrown away, simply by doing what others have done, without knowing why they did it; and yet the practices may have been very good in themselves at the time and for the purpose, whatever it may have been, but of no avail to the purposes of the modern imitators.

It is not long since the writer was talking to one of the leading scientists of Europe, and wishing to learn the present condition of physiological science, introduced the topic of root-growth. It was contended by our really learned friend, that roots could only grow well when in very loose soil, which soil must be very loose in order to "admit air to the roots," for, "without a free communication of the roots with the atmospheric gases, rapid growth was impossible." He was at once referred to grape vines, which, for mere experiments, had been set in what might be termed a *turnpike* road. It was, in fact, the side of a road which had been heavily stoned, and over which horses and heavy carts have been running for twenty years. The "turnpike" had to be torn open with a pick to admit the grape vine roots, and the material picked out, filled in again after the roots were set in. Yet these vines make an annual growth of *twenty feet*, and bear fruit of the very best description. The grower top-dresses with rich manure, prunes "according to the art," and so forth. The plants have the best professional treatment, but "loose soil to admit the air" they have not. Our friend looked at the illustration, shook his head, and passed on. It is a question whether the circumstance will ever be called up again to his mind. He will yet teach that plants "must have loose soil," as strenuously as ever. He will no doubt think that one or two instances are exceptions; and yet on "one or two facts," or *experiments*, as they are generally called, by not merely "one or two," but often by one original observer, most of the current literature called "vegetable physiology" is founded. If "one or two" plants can grow magnificently in hard, solid soil, but with an abundance of good fertilizing matter, without being "loose to admit the air," why may not a thousand?

But these "one or two" facts are not the only ones. The writer is in favor of ploughing and digging our soil, very much as before. There are many reasons why we must do so; but if we ever believed that the mere loosening of the soil was to be one of these reasons, it is clear from these facts, and from facts which we gave some months ago in a similar article, we should be worse than an idiot to continue on in that belief. We shall have to dig and plough and cultivate for many reasons; we often do so now because we think the roots requires this; but where there is no other reason than this, we may save ourselves this much labor and expense. With abundant plant food they will take care of themselves.

We mentioned these circumstances to Mr. Vick-

roy, who has charge of the experiments at the Industrial University. He sustained "one or two" facts by his own experience with corn. For four years corn had been planted in two lots side by side. In one the ground was manured and "worked" in the usual manner for corn, in the other it was manured in the same way without any working. *There was no differences whatever in the crops produced from either lot.*

Now because these facts are true, we do not propose to stop all digging or ploughing up of the soil,—we propose to go on as usual.

SCRAPS AND QUERIES.

CARTER'S CHAMPION SCARLET RUNNER.—*Messrs. James Carter & Co., High Holborn, London*, write: "Carter's Champion Scarlet Runner. This is an established variety, quite distinct from ordinary scarlet runners, and announced to be very superior by the Royal Horticultural Society of England. We notice in your August issue that Messrs. Thorburn stated to a correspondent they have tried this variety of beans, and that it does not appear different to them from the Scarlet Runner. Messrs. Thorburn did not buy any Carter's Champion Runner from us last season,—we therefore don't see how they are in a position to offer an opinion about it. They may have got Carter's Champion Runners from some other house, and it may not have been true; in fact it could not be true if they made it to be the same as the ordinary Scarlet Runner."

TARRED PAPER AGAINST FRUIT TREE BORERS.—*S. R. B., Phila.:* "I want some information about the use of *tarred paper* as a preventive of the borer in fruit trees. Will you be so good as to inform me through the *Gardener's Monthly* where it can be procured, and how it is applied?"

[Paper—newspaper or any paper is tied loosely about the collar of the tree, and warmed tar applied with a brush. It is a perfect and simple guard against borers.]

THE TULIP TREE IN TEXAS.—A Washington County correspondent tells us that his trials with this have proved the Liriodendron to be admirably adapted to that climate. Several hundred trees, but a foot or so high, two years ago, are now twelve, and the admiration of all who see them.

PLEROMA ELEGANS.—*S. E. P., St. Joseph, Mich.:* You can succeed with this in an ordinary greenhouse. It does best, however, in a stove. We have known it to do tolerably well, however, in a house where the winter temperature was between 45° and 60°.

ANTHURIUM SCHURZERIANUM.—A lady correspondent desires to know the best treatment for this plant. Will some of our friends who have it, kindly respond? We have seen it beautifully grown at Mr. Geo. Such's, and also by Mr. Alex. Newitt, in Germantown.

IMPROVED CALCEOLARIAS.—*Sarah E. P., St. Joseph, Mich.:* "What are the peculiarities of James, international prize Calceolaria?"

It is the effort of Calceolaria growers to have the flower as rounded in outline as possible, and of as many harmonious tints of color as they can get. and with the lines of color well defined.

We suppose James had a premium for extra good kind, and the seeds from his plants will therefore bring a better price. We do not know that there is any especial peculiarity in the strain.

LAPAGERIA ROSEA.—*Mrs. S. E. P., St. Joseph, Mich.*, asks for a description of this plant. The following is from an English publication, and, though referring to a white variety, suits her inquiry in all but the color of the variety:

Lapageria Rosea var. Albiflora.—Ruiz and Pavon, Spanish botanists, were the first to discover this plant, clinging to the trees of the forests of Rere and d'Itota, in Chili and Peru, as described in their grand work on the flora of those countries; but the first plant was brought to England by the Rev.—Wheelwright, and sent to Kew. Shortly after, the celebrated botanist Thomas Lobb sent over several cuttings to Messrs. Veitch & Son. It is a climbing plant, with long and numerous branches; its

stem and branches are sub-cylindrical, bare below, and scaly here and there. The leaves are alternate, far apart, lanceolate acuminate, thick, and shining, having five longitudinal nerves, connected by a reticulated nervation; they are about four inches long, and two inches and a half wide. The petioles are very short, twisted, channeled beneath, striated above, dilated at the base, and semi-amplexical; they enlarge after the fall of the leaf, and become more deeply striated. The peduncles, longer than the petioles, are axillary, solitary, dull colored, with several scales at the base (colored). The flowers are large and beautiful, comparable in form and dimensions to those of the white lily; they are of the richest possible crimson, or a lively rose color, in the species we possess, and ornamented with white points inside, and on the exterior sides of the internal segments. In the variety now under notice, the flowers are of a creamy-white tinted with yellow. In those first described, the external base is spotted with dark violet; in the white flowers with rose, or often not spotted at all; they are about three inches and a half long, and about two and a half broad.

STRAWBERRY HISTORY.—*H. N., Knoxville, Tenn.:* "I have odd numbers of the *Gardener's Monthly* from vol. 1 No. 1, to 1870; and in running over them recently, I have been much interested in several points started by you, upon some of which I am tempted to ask information.

(1). In the strawberry controversy with Longworth, did he claim that the Staminate and Pistillate characters were unknown or disregarded before he drew attention to them?

(2). Do you know of any one having studied the strawberry bloom with the microscope? If so, who?

(3). By whom is the strawberry most thoroughly discussed?

(4). Was the series of entomological papers of Mr. Rathvon ever published in book form. If so, by whom, and at what price?

I trust you may find it not too inconvenient to answer these questions, as the answers to the three first may materially influence my own study of the strawberry."

(1). [Mr. L. contended that the fact of separate sexes in the strawberry plant was not known until communicated to him by an old German market woman in Cincinnati. It was not entirely unknown previously, but yet it was so little known, that for all practical purposes Mr. Longworth was right. Mr. Longworth was also right in urging the necessity of growing male flowering plants alongside of female ones, in order to get a full crop.

But Mr. Longworth was wrong in contending that a plant once female was always female. The "controversy" referred to was in regard to this point. In many cases of female varieties, (which had the stamens arrested in their development,) circumstances would favor the production of stamens, and thus a plant pistillate in one place, would become hermaphrodite in another. This, Mr. Longworth denied. The value of the question was chiefly in regard to the identity of the varieties furnished by nurserymen.

(2). We know of no person who has specially studied in this way.

(3). Pardee on the Strawberry is so far the best work. There was another work published by J. E. Tilton & Co., of Boston, and written by Mr. Merrick, which contains full descriptions of the varieties known at that time.

(4). They were published by Brinckloe & Marot, at the office of the *Gardener's Monthly.*]

INSECT IN THE LINDEN TREES.—A Philadelphia correspondent sends us the following note: "I have a very handsome row of English Lindens, which are about forty years old. The Grub got into them, and I have lost several. If you would inform me what I could do to kill this destructive worm, I should be much obliged to you."

[We do not know that any remedy has been found against the Linden borer. Unlike the apple, peach, and quince borers, this one works all over the tree. If any one has had any successful experience, we should be glad to know.]

AURICULAS.—*H. B., Chicago, Ills.,* says: "Will some one who has had experience, write of the culture of the Auricula?"

TO INQUIRERS AND CORRESPONDENTS.—A long absence this summer has delayed some of our correspondence. If any desiring notice in this department have been overlooked, we shall be glad to give them attention. Inquiries for this department are always welcome, as it generally happens that what one wants to know about, is just the knowledge hundreds are seeking. Notes and observations about horticultural matters are always welcome.

BEGONIA COCCINEA.—*L. B. C., Richmond, Indiana:* "I want to trouble you a little for a name, as I know of no one else competent that I think will do it for me.

In my collection of Begonia I have two named Begonia *sanguinea*, the first one (marked No. 1) is said to be from Mr. R. Buist's place, and named by him; but I find in Paxton's Botanical Dictionary, B. sanguinea has red flowers, and B. sanguinea atropurpurea flowers black red. My plant from Mr. Buist's has white flowers in great profusion.

I received from a German gardener last spring, among a lot of Begonias, a plant labeled B. sanguinea, similar in habit to B. hydrocotylifolia, and suggesting to him it might be misnamed, he told me that in the King's garden of Hanover, the one he sent me was labeled B. sanguinea, and the other is labeled B. coccinea. But Paxton says it has scarlet flowers; the Hanover plant has not yet flowered, but I forward a leaf."

[The leaves came to hand during our absence last summer, and, being very much crushed in the mail, could not be preserved well without rotting.

The true B. sanguinea has, however, a leaf sharper than No. 2 appears to be, but not so sharp as No. 1. The plant is a strong growing, shrubby one, and not half herbaceous and low growing as hydrocotylifolia is. The under surface of the leaf is a blood red, whence its name; but the upper is of a dark green. Send some of each, and a leaf, when in flower.]

BANKRUPT NURSERYMEN.—An Illinois correspondent does not seem to like the idea of a nurseryman going into bankruptcy; and it must be admitted that the cases of well established firms going over are very rare. He says:

"In regard to Peter Lawson & Son going into bankruptcy, you doubtless know much more about it than I do; but I was astonished in the old country to hear of their branching out in so many directions. I can't tell the particulars, but as well as I now remember they had *immense* investments in Guano Islands and other speculations—the last of which I read of quite lately. It was to get control of Hayti or some great interest there. I remember in reading that it seemed to me quite as wild as old John Lewis' South Sea bubble. Of course I can't vouch for these things. but have no doubt there is substantial truth in it. This last may have 'fixed' them. They were, I think, much heavier in seeds than in the nursery line."

PRICES OF CUT FLOWERS.—*S. G. C.*—"It has been suggested by florists here, and I am requested to make it known to you, that it would be a feature of interest to many western florists if you would give the market quotations for leading cut flowers (rose-buds, carnations, etc.) as is given in the *London Chronicle*, for London, for Philadelphia and New York, during the fall and winter Nos. of the *Gardener's Monthly*. Think of it, please."

[Our correspondent refers to the following which we take from *Gardener's Chronicle* of August 2nd:

CUT FLOWERS.

	s.	d.	s.	d.
Carnations, per doz	0	3	to 1	0
Gardenias, "	3	0	—6	0
Heliotropes, " —sprays			—0	6
Mignonette, 12 bun	3	0	—6	0
Pelargoniums, Zonale, p. 12 sprays	0	3	—0	9
Pinks, p. 12 bun	2	0	—4	0
Ranunculus, per doz. ...bunches	4	0	—6	0
Roses, "	0	6	—6	0
— Moss, " bunches	4	0	—9	0
Stephanotis, per 12 sprays	2	0	—4	0
Tropæolum, per doz. bunches	1	0	—2	0

PLANTS IN POTS.

	s.	d.	s.	d.
Azaleas, each	—	to	—	
Begonias, per doz	6	0	—12	0
Bouvardia, "	9	0	—18	0
Calceolarias, per doz	3	0	— 9	0
Rhodanthe "	6	0	—	...
Dracænna terminalis, per doz	12	0	—30	0
" viridis, "	12	0	—24	0
Erica, in variety, from	12	0	—30	0
Fuchsia, per doz	4	0	—18	0
Double Pelargoniums, per doz	4	0	— 8	0
Mignonette, per doz	3	0	— 5	0
Myrtles, per doz	3	0	— 9	0
Pelargoniums, per doz	6	0	—18	0
Petunias, per doz	4	0	— 9	0
Spiræa japonica, per doz	...	—		...
Scarlet Pelargoniums, per doz.	4	0	— 6	0

Unfortunately there are no flower markets in America such as Covent Garden in London; and hence there are no regular prices to quote. The price of flowers is generally a "dicker" between each buyer and seller: and at the very time you may be paying $20 to $30 per hundred for Camellia flowers, another buys from your neighbor at $10 to $20.

Some attempts at having a regular market rate from week to week, according to supply and demand, have been made from time to time in Boston, New York, and Philadelphia, and a few leading items such as Camellias, Roses,

Heliotropes, &c., are sometimes dealt in by the hundred, at something like a regular rate. But attempts of this kind have never been well seconded by the cut flower trade generally, as for their best interests they ought to be.]

ADDRESSES OF ADVERTISERS.—*An Illinois firm* write: "Seeing quite a number of cards in the *Monthly* from parties wishing situations, we have written to several, but have had our letters returned to us because the address was not written in full. Under the present Post Office regulations, letters which are not addressed to a persons full name, are not delivered in future. So put in the full name in situations wanted, so that letters addressed to the parties will reach their destination."

[Our advertisers will please take note of the above hint. It is a great hardship that persons may not, if they choose, seek for information in a newspaper, without being obliged to publish to all the world their private business. You need a cook, or a washerwoman, or a gardener, or a coachman, but you don't want that busy body Jones over the way to know that "there has been trouble again between Smith and his hired folks;" and "what I wonder has been the trouble between them;" so you advertise that A. B. A. C. "wants," &c. This has been the custom all over the world for ages, and still is all but here; but it was left to the wiseacres of our Post Office people to find out the enormity of the practice. Still, as it seems to be the "ruling," our advertisers had better take notice.

Another correspondent tells us that, wishing to call our attention to a newspaper article he marked by a line, as has been the custom of every body since the world began, but his postmaster happened to see it, and called his attention to a "ruling" that any mark or signs on printed matter with pen or othewise "subjected the whole package to letter postage."

How long the American people intend to stand this nonsense, it is not for us to say. For ourselves we feel indignant whenever we think of it.]

GARDENING IN THE UNITED STATES.—"I am a young unmarried man, with a thorough practical knowledge of gardening in all its departments. And am also 'thoroughly up' in stock and tillage farming—having left a situation in Ireland which I held as Land-steward and Gardener for six years, to come to Canada, where I have been for the past two years. My 'Old Country' testimonials and Canadian references are first class in regard to character and ability, as well as splendid success on the exhibition table. I hold a good situation as gardener at present; but I am led to believe that there is higher wages as well as a better and wider field for first-class men in the States. I have a strong desire to try my luck there; and, having no person to ask advice of, I would take it as a great favor if you would be kind enough to reply to the following queries, through the pages of the *Gardener's Monthly:*

1. Should I stick to gardening alone? 2. Should I stick to farming alone? 3. Should I combine the two? 4. The best time to change? 5. What place would you advise me to try, under the circumstances?"

[This is one of those peculiar questions which ought to be answerable, and yet puzzles us to do it. It is not true that the wages of gardeners are higher than they are in England or Canada. Nominally the are; but when the purchasing power of the currency is taken into account—and this is really what "wages" amounts to,—English wages are better. We suppose a situation would be considered below the average in England which did not pay 30 shillings a week with house, coal and vegetables.

A gardener here with the purchasing power of our money, ought to have $50 a month, house, fuel, &c. And few places—such as they go—give more than this. There are places which give $75 to $100 per month; but very few. There are probably not a hundred gentlemen's gardeners in the United States who receive over $80 per month. As a rule, men are better paid in commercial establishments than in private gardens. We are inclined to think that on the whole, gardeners are not paid as well here as in Europe; and certainly not near as well paid as they ought to be. Every year large numbers of excellent gardeners leave the profession for others which pay better. The places where gardening and farming are combined, are still scarcer. We think that either alone will be the best course. Changes, when made, are usually in February or March. In regard to the fifth question, the thickly settled portions of the country usually exhibit more horticultural taste, and pay more than others.]

WHITE SPRUCE.—A correspondent sends us cones and branches, inquiring, "did you ever see cones of the white spruce five inches long?"

It affords the opportunity to say, that there is in Europe a grey form of Norway spruce, and is known there as the white or blue spruce. This is not the true white spruce of Northern America, which is rather related to the Mensies' spruce of the West, than to the Norway spruce of Europe. Our American white spruce can always be distinguished from white forms of the Norway Spruce, by the sharp, spine-like termination of the leaves. The Norway, although it has a short slender point, has bluntish leaves.

STOCK FOR TREE ROSES.—A Bloomington, Illinois, correspondent asks, whether "there is no good hardy native rose on which to get up standard or tree roses."

The prairie rose class, *Rosa rubifolia*, is the best. Our native roses have not very woody stems; or if woody, do not grow very strong. *Rosa lucida*, the commonist of our Eastern wild roses, and which we all know by its large, rosy, sweet flowers, seldom grows but two or three feet high. *Rosa cinnamomea*, which takes the place of this to a great extent in the far West, is not much larger; and the swamp rose of the Middle States, *R. carolina*, is about the same in growth. These are the chief strong growing native roses; and none but *R. rubifolia* at all fit for stocks.

There is the Manetti rose, which is said to be of Italian origin; but we know of no European species to which to refer it; and strongly suspect it is but a strong form of our American *Rosa lucida*. But strong as this form is, besides its bad habit of suckering, it grows hardly tall enough to make a good tree rose stock.

GLAZING GREENHOUSES.—*F. T. B., Cincinnati, O.*, writes: "I am much troubled by drip in my greenhouse. The water seems to come in between the putty and the wood on the outside. Is there any way to prepare putty so that it will not do this?"

[Puttying outside of a greenhouse is a relic of barbarism. No one who has kept up with the progress of gardening does it any more. The glass is cut, or rather the wood-work is so arranged, that the panes fit very loosely in the rabbets. Putty is placed on the ledge, and the glass pressed on forces the putty up between the very small space between the glass and the wood. This forced up putty is then smoothed off level with the glass, and this is all. Afterwards the wood-work is well painted. There is never leakage in a house like this. Only those in this locality who do not read horticultural papers, use putty in the old way.]

PITCH OF GREENHOUSES.—*J. H. McH., Pikesville, Md.*: "Having to reconstruct recently a span roof forcing-house, I looked in my books for instructions as to the pitch of the roof, but could find nothing applicable to the case, though I did find articles upon the suitable pitch of lean—to houses, according to the latitude of the location of the house, and the purposes for which it might be intended. I accordingly adopted the pitch followed in my old house which is less than 45°—perhaps about 40°—with horizontal line; and, although it will be too late for your advice to be of service to me at this time, I shall be glad to see some remarks from you at your convenience on this subject in the *Gardener's Monthly*. I assume that a span-roof house runs north and south like mine."

[There is no rule for the pitch of greenhouses. It is entirely dependent on what the houses are for. General principles can only be given, which can then be applied to circumstances.

In the first place it takes more lumber, more glass, more paint, and more labor to build a steep than a flat roof,—and expense is a consideration with many persons. On the other side a flat roof does not permit of water running down easily—there is drip,—it sags sooner by its own weight, and by the weight of rain and snow—the glass is more liable to crack in winter. In short, the disadvantages of the future are greater than the extra outlay at first on a steep roof.

All this in regard to construction. Now in regard to plant growth. To flower plants well the *direct* rays of the sun are very important. For winter flowering a steep house receives these direct rays much better than a flat one, and so a profusion of blooms can be kept up with much less coal, in a steep roofed house. Where winter flowers are not wanted, there is no *cultural* objection to a very flat house. In view of all these various things to be considered, those who give general instructions for building houses, are unable to say, in a general way, what the proper pitch should be,—they therefore generally employ the angle of "45°" as the average. Many houses, however, are much less than this, and few more. For winter flowering, however, we like full 45° as well as for the strength and durability which such a steep angle gives.]

A HANDSOME PEAR ORCHARD.—*Walworth, N. Y.*, sends us the following: "I have a crop of pears in my pear orchard, that exceed by far any sight of fruit I ever saw; and all who have seen it express their admiration of it. I am reluctant to write to you to come a long way to see it, but am confident you would feel compensated for some effort and time spent in that way. We are six miles north of Palmyra. Bear in mind, my orchard is in grass."

[Though a semi-private letter, we take the liberty to publish it, because it comes from one of our most distinguished pear growers, and one who, if we mistake not, was at one time one of the warmest advocates of clear surface culture, and thus the invitation has a public interest which will warrant the use we make of it. This season of fairs, and hard work generally, does not permit of our acceptance of the kind invitation, much to our regret.]

CULTIVATING FRUIT TREES.—During the past summer, while the editor was in the West, several articles appeared in the *Country Gentleman* on this subject. One correspondent gave a sad account of some experiments conducted on what he called Meehan's system. Another correspondent expressed some doubts as to whether the other understood the "system," as he called it. Whereupon he replied that he understood it to be to keep orchard trees clean and cropped with vegetables for six years, and then put it down in grass. We give the substance, not hav the correspondence before us. Of course no regular reader of the *Gardener's Monthly* understands us in this way; and it goes to show that most of the attacks made on us, are made under a misapprehension.

We do not know of one case where the trees have been in grass from the start, and the trees and grass liberally top-dressed with fertilizing matter, that the owner would willingly go back to any other system; but we do know of scores of failures on the traditional plan.

BEE PLANT—POLANISIA PURPUREA.—*R. N. W.* "You will recollect you mentioned a bee plant indigenous to Colorado, which grows quite freely. Will you be kind enough to describe it minutely either in a letter or through the *Gardener's Monthly*?"

[*Polanisia purpurea* is the plant referred to; and the writer stated it to be a good bee plant, on the authority of Miss Ella Dunlap, of Illinois, who knows everything about bee management if anybody does.

In this part of the world the bees do not seem to care greatly for it, *because* they get plenty of white clover—and a bee "in clover" cares for nothing else in this world—as neither will the writer when he gets there. Where the West has no clover, the Polanisia is just the thing.

The description of the plant is not easy, unless one has some acquaintance with botanical terms. It is of the natural order *Capparidaceæ*, and nearly allied to the well known Cruciferous order, but the stamens are all of equal length, while they have four long and two short as a general rule. Again the seed vessel is elevated above the petals by a short stalk unusual in most plants. The flowers extend nearly an inch from the stem, and the spike several inches long. The flowers of a whitish purple color. The leaves are unlike most plants of this region—palmate—or like a miniature horse-chestnut leaf. The plant grows about two or three feet high, along the Platte River, near Denver, sparingly, and very abundantly in the Salt Lake Valley, where itis mixed with an allied yellow one, *cleomella lutea.*]

AGRICULTURAL FAIRS.—We are under obligations to friends all over the Union for tickets and kind letters of invitation to meetings all over the Union. They have our good wishes, and are sorry our presence cannot always go with them.

DR. BIGELOW.—One of our pleasant recollections of Boston is a brief call on this veteran botanist. His delightful flora of Boston and vacinity did as much to make a race of botanists as Barton's work did in Philadelphia, and Torrey's in New York. The value of these local floras has scarcely been appreciated from this point of view. He is now about seventy-five years, blind, and confined to his room, unable to receive any but a few intimate friends; but still bearing his infirmities of age cheerfully in the consciousness that he has faithfully performed the work appointed for him to do, and that his life has not been spent in vain.

ELIAS DURAND.—This distinguished botanist departed this life in the 15th of August last, after a life of laborious usefulness, in his 80th year. As one of his associates in the botanical department of the Academy of Natural Sciences,

the writer has been invited, by a special resolution, to prepare some account of his life and services, to be read before that body. We shall therefore defer what we otherwise would have said, to a future occasion.

American Ferns.—*J. D., Paterson, N. J.*, asks for the principal kinds of North American ferns that can be supplied by our nursery firms. Who has full collections?

Clover in Orchards.—*J. L. M. J., Parkesville, Indiana.* "Mr. A. M. Purdy & H. T. Williams say that you have a more practical and scientific knowledge of plants than any man in North America, or words implying as much. Now then, I will give *conditions*, then a question. I planted an orchard of six acres in the fall of '70, I sub-soiled it twice in '69 and '70 to the depth of 18 to 22 inches. It is tiled from 2½ to 3 feet every 35 feet. The land is rather a clayey, hough nearly a loam soil. It has a southern and eastern slope. I laid out this land in quincunx style of 33 feet. The 1st row I planted an apple tree every 33 feet, and in between the apple a standard pear. The 2nd row, every 33 feet, an apple and standard cherry, and so on through the entire ground. Again in the middle, between each apple tree row, I planted vines 7½ by 16½ feet through the entire ground. I have cultivated this orchard in root crops three years in October next,—when I say cultivate I *mean* cultivate. I prune in March and July of each year. The trees are truly large for their age. The grape vines in spring I will train in horizontal arm style. Now, sir, one question. I want in the spring to sow *red clover* on the ground, and mulch the trees and vines *the entire surface.* Ought I, or dare I, to do so without injury to trees and vines? I know what other writers and horticulturists say. I want to know what *you say* individually.

[With pleasure we would answer inquiries "individually," but life is not long enough for such a task if we were to undertake it. Any question that is likely to interest others as well as the writer, and most are, we will cheerfully answer in the *Gardener's Monthly.* Such inquiries are always welcome.

In the case in hand there will be no objections whatever to sowing the orchard in clover, provided it be remembered that *clover requires manure as well as root crops.* There is no need to mulch the trees. Cut the clover when it is fit to cut. Make hay of it and turn it into money; and with part of the money buy manure and put heavily under the trees every year as far as the young roots are likely to extend; and once a year give the clover a light dressing of some fertilizing material.

The trees are now growing nicely. Keep them growing by nice rich surface dressing. We often hear of trees in the West growing *too vigorously*, and thus becoming injured by "growing too late in the fall." But this is only where the surface roots are injured. When the feeding roots are at the surface, they know when the seasons change, which they cannot do when deep down. They know when to stop work; and such roots can never be over fed. When roots are thus surface fed, even manure heaps piled up under fruit trees will be appreciated by the tree rather than objected to, even in the richest western soil.]

BOOKS, CATALOGUES, ETC.

Catalogues of Ellwanger & Barry, Rochester, N. Y.—We have before us a complete set of these catalogues bound in one neat cover. We have always been proud of the catalogues of our American nursery and seedsmen. They compare favorably with the best of Europe. If such as these had been sent to the Vienna Exposition, they would have done America credit. We hope the hints will not be lost sight of for the American Centennial.

Eighth Annual Report of the State Board of Agriculture of Missouri—From John F. Wilandy, Cor. Secretary.—Several of our States have State Boards or departments of agriculture, and all of these publish annual reports; but few come to our table that are so carefully and instructively compiled as this. It affords a careful view of the agricultural prosperity, and commercial progress, on which agriculture so much depend of the State, and must

be of great use to all those who propose to settle within her borders. Attached to the volume is the 5th report of the State Entomologist, Prof. C. V. Riley, to which we have already referred in a former number.

CATALOGUES OF MESSRS. T. C. MAXWELL & BRO., OF GENEVA, N. Y.—Our nurserymen's catalogues are all so much alike, and all generally so excellent, that it is difficult to single out any one as having special features. This is one of these very superior publications. On looking through it, however, we find that the beautiful golden arborvitæ,—which these gentlemen have advertised as "Geo. Peabody," and which many of us have now growing and admiring as Geo. Peabody, is not to be Geo. Peabody, simply because somebody in England will not have it so. We are *commanded* henceforth to call it *Thuja Occidentalis lutea.* Not if we know it. The same "authorities" made, or rather vainly tried to make, Ellwanger & Barry call their plant something else besides "Tom Thumb;" and we trust Maxwell & Co. will show a similar commendable spirit. We shall sustain them in their right to name their own wares. As to the Latin name, besides the absurdity of Latinizing garden varieties, and the horrid length of this one, the name will lead to confusion, as Burrows & Wood and others have golden varieties, which are as much "luteous" as this one is. Stick to your name, Messrs. Maxwell. We are quite sure the intelligent English horticultural journals will sustain you.

NEW AND RARE FRUITS.

CAROON CHERRY.—*Mr. Elliot* says: "It is hardly worth while for an old snubbed fellow like me to touch anything, but when you in your list of *new* and *rare* fruits touched the caroon cherry, I have to say that my remark in the A. P. S. foot notes comes in upon you, for it is well known by all pomologists, that it is only the old *Black Heart*, or again possibly a simple Black Mazzard. More likely your Bucks County *Intelligencer's* knowledge is made up of Amer. Heart, when he says 'white and pink,' but again he may have the old Bigurreau."

[We are always very glad to have any facts from any quarter, and they are always very welcome from Mr. Elliott, who has had more opportunities than have fallen to many of us to get horticultural knowledge, and who has well improved those opportunities. We have never "snubbed" his knowledge, but admire it; but we have objected to what seemed to us his "snubbing" of other people's knowledge. We are quite sure this is done thoughtlessly, and without his duly weighing the force of his language; and thus, though we were the first to comment on his injudicious "foot notes," when we were reviewing the published proceedings of the Richmond meeting, we have not joined in the recent crusade against him for these very foot notes, because we believe it possible for the best of us to make these thoughtless and unguarded mistakes. We want Mr. Elliott's knowledge, and if we cannot have it without his weaknesses, are very willing to have it with them; just as we have it now.

We found in the *Bucks County Intelligencer*, a paragraph to the effect that a first-class cherry was grown about Doylestown, and that it was known as the Caroon. It was very evident from the description, that this was not the Caroon of our accepted pomology, and it was well worth while calling public attention to it. Thus we published the paragraph without comment, as we often do others under similar circumstances. If for this, we "come under his foot notes" which say that editors of magazines know nothing of fruits, we presume Mr. Elliot himself comes under them also, for his note shows that he does not know any more than we do, what cherry it is that these good Doylestown people call Caroon. It "may be" the Biggareau, but "may be" is not horticultural knowledge.

As we are on the subject of the Caroon, let us say that we think our horticultural writers are at fault in identifying it with the Mazzard. What is the Mazzard cherry? Downing, and we believe all other writers, identify it with the "Merry" of the English gardens. This is a small black cherry not as large as the Black Heart, with a rather small stone, and very full black juicy flesh. The true Mazzard is simply

the cherry which has for ages ran wild in the woods of France and the continent of Europe, and which are degenerate wildlings of the original Asiatic introductions. These are of all classes of fruit, and many of them as far removed from the cultivated "Merry" of English gardens, as the Merry is from the Clevcland Biggareau. Some of them are nothing but stone with a thin red skin drawn over them, others are red, black, white or pulpy, as good or some even better than the "Merry." These wild fruits have long been popular in France for stocks on which to work the named garden kinds; and we suppose because they were thus used, are called Mazzard by the English, as the last *s* at least in the French *masse* would have the *z* sound, and the word would readily be corrupted (as so many others have been similarily) to Mazzard; that is *stocks*. We have never met with any explanation of the term, but suppose this is right; and if so, the identity of the Mazzard with the Merry and the Caroon, is broken up.

We do not know personally the Caroon. Never saw a tree so named by authority; but suppose that caroon—from the crow black color—might properly belong to the "Merry" of the English; although the term Mazzard does not.

If this explanation still leaves us "under those foot notes," perhaps Mr. E. will give us some better light by which we may get out.

Since writing the above, we have the following from another correspondent—which not only gives us some information as to what this Pennsylvania Caroon is, but also some hints about the Napoleon Biggareau, which we had supposed named for another Napoleon:]

"Seeing a notice in *Gardener's Monthly* in regard to the Caroon Cherry, I will state I have known the trees for several years, and that I think is the Napoleon Biggareau of 'Downing's' fruit and fruit trees of America.

I was informed by a nurseryman, formerly of Trenton, New Jersey, that the above cherry was disseminated from the Bonaparte place, at Bordentown, New Jersey, and that it was the same as the Caroon. It rots very badly if the weather is dull at the time of ripening. Would prefer the Elton, which ripens a few days sooner.

IRA J. BLACKWELL."

Titusville, N. J.

CHAMBERS PEAR.—*Mr. W. M. Cox, Anchorage, Ky.*, writes: "On yesterday evening I forwarded you by express a small box of specimens of the Chambers pear, which I trust will reach you just ready to eat, instead as of last year, reach you just in a condition to be thrown away. These specimens hardly give this variety credit, but you can form an idea of what it is when we have a good season."

[These were re-mailed, and reached us in Denver—not in the best condition after so long a journey—but in sufficient good order to enable us to testify to their good character.]

HYBRID RASPBERRIES.—*By Mr. W. Saunders, London, Ontario, Canada.*—In the last report of the Fruit Growers' Association of Ontario—of which I believe I sent you a copy—you will find a paper of mine, giving details of my experiments in hybridizing. Among other hybrids you will find reference made to twenty-nine plants of a cross between Doolittle Black Cap female, and the Philadelphia Raspberry male. The seed of this cross germinated two years agot his spring, and most of them are now fruiting.

I send you by mail samples of the fruit of the first one to ripen, which I think shows undoubted evidence of the blood of both parents. In habit and manner of growth all these seedlings resemble the Black Cap, and they root from the tips, although not so readily as the Black Cap. The foliage shows some resemblance to that of the Philadelphia. The fruits of these seedlings will vary much in their period of ripening: some of them are not more than half grown. The fruit is of a dark red color, and seems to me, without doubt, to blend the flavor of the raspberry with that of the Black Cap. If you examine the receptacle on which the fruit sets, you will see that it is intermediate in form between that of the Black Cap and Red Raspberry.

I regard this Red Cap as in every way a very interesting addition to our fruits. I think the plant from which I send you these specimens, is quite as prolific as any of the Black Caps. If you wish I will send you samples of some of the later varieties as they ripen.

Please let me know how the specimens reach you, and what you think of the fruit.

[The fruit referred to reached us while in the West, and was not in condition to be re-mailed to the editor, as instructions were left when anything of interest arrived during his absence.

The experiment of Mr. Saunders has an intellectual interest, beyond the good which may re-

sult to practical horticulture, and we should be glad to know more in future.]

EARLY BEATRICE PEACH.—*Mr. Watson of Brenham, Texas,* says: You ask in the *Monthly* what people *know* about Early Beatrice Peach. I had some young trees fruit this season, and it proves good with me; first ripe May 19th. I think it very valuable as a market fruit. Will ship well. Is fine in quality and very pretty.

EARLY BEATRICE AND LORD PALMERSTON PEACHES.—The Early Beatrice Peach is bearing heavy crops of medium sized fruit, and is, perhaps, the earliest peach we have in cultivation, being three or four weeks in advance of the Early York, and specially interesting on account of its having been obtained from a stone of River's White Nectarine. Early Louise, another seedling, is but a day or two later than the last, and ripens in an orchard house about the 14th of July. One of the finest of all the seedling peaches that have been raised at Sawbridgeworth, is Lord Palmerston, which is perhaps the largest-fruited and finest peach for exhibition purposes ever added to our collection. Two small standards of it in 11-inch pots are now ripening heavy crops, one of the fruits of which was gathered while we were present weighed 11 ozs. The flowers of this variety are large and handsome, and the foliage is furnished with prominent round glands—a section not so liable to be affected with mildew as such as have glands of other forms It is a seedling from the Princess of Wales (Rivers), and ripens naturally about the middle or latter end of September. It is a free-stone variety with a slight tendency to cling on the shady side unless thoroughly ripe, and it has firm, though luscious, melting flesh, very rich and juicy. Though a seedling raised at Sawbridgeworth, in size and beauty it resembles its grand parent, the monstrous Pavie of Pompone. The skin is of a creamy-white tinged with rosy-pink on the sunny side, and irregularly streaked with crimson. Many hundred seedling Peaches and Nectarines are annually raised here, and often fruit the second or third year from seed. The pedigree of all promising varieties is carefully preserved.—*The Garden.*

ALEXANDER PEACH.—From a little memoranda made at the time, I find the first "Alexander" was eaten July 18, and the last July 26. The first "Hale" (windfall) August 2, but no fairly ripened sound peach of that variety, such as would serve for a fair test of comparison with the others, was obtained until a week later. The fairest statement I can make of the time of ripening for each is July 20 for "Alexander," and August 10 for the "Hale."—[C. A. ALEXANDER, in Capps' *Journal of Horticulture.*

We give the complete history of this variety originating at Mt. Pulaski, Logan Co., Ills., because we regard this, if not the result of premature diseased ripening, the most valuable addition that has been made to our list of peaches since Hale's Early. We see no reason why the season of the peach should not be made as early as that of the apricot, and hope this new variety will be an important step in that direction. The entire failure of the peach crop this year will prevent a second test before 1874; and even the propagating of the variety has been much hindered by the unfavorable season.—*Prairie Farmer.*

NEW AND RARE PLANTS.

RHUS OSBECKII—Is the name of the Japanese tree referred to by a correspondent: "My attention was attracted yesterday while visiting Andalusia, on the Delaware, to a tree in full bloom, which none of the family, or any one in the vicinity knew the name. Col. Chas I. Biddle, while a member of Congress in 1860, brought from the Agricultural Department a small root. The tree is now about 18 feet high, head round, and closely covered with flowers, presenting a very beautiful appearance. Will you please give me the 'name,' as I stated to the family that if any one could do so you would be the proper person."

GODETIA DUNNETTII.—The class of plants to which the common evening Primrose belongs (*Œnothera viennis*) affords numerous handsome

species which are among the most valued of our garden plants. In the Eastern States we have scarcely a dozen good species, but in the far west and along the line of the Pacific southward they increase to such an extent as to be numbered by the hundred.

The genus has been divided by some botanists and *Godetia* is little more than a subdivision of Œnothera; one of the earliest and best known of these is *Godetia rubicunda*, and this still remains among the best for ornamental purposes. *G. Whitney*, introduced some half a dozen years since, is an improvement on the old form, possibly a good species, and now we have a Garden Variety of *Œ. rubicunda* raised in England and named *Œ. Dunnettii*, which is at least equal to any raised in the size of its flower, and general good habit, and of which we give with this a sketch. The color is rosy lilac, and the crimson blotch, so prominent in *G. rubicunda* is particularly prominent in this.

Its parent is a hardy Californian annual, and this improvement, like all the hardy annuals, should be sown *early* in Spring, in order to have the best results from them.

A NEW SPECIES OF ROSE—*Rosa Rugosa Regeliana.*—We must beg our readers who may feel interested in the accuracy of botanic nomenclature to turn back to a description given by us some twelve months ago of a fine rose figured and described under the name of *Rosa Regeliana* (*Illust. Hort.*, 1871, plate 1.)

The plant in question was forwarded to M. Linden unnamed. It came from Japan, where it had been collected by M. Maximowicz. Deprived by the war of the assistance of our foreign correspondents, and without a library at hand for reference, we were fain to rely on the opinion of a friend, who, after an examination of some fine dried specimens with blooms, pronounced it to be a *new* species. *R. Regeliana* was accordingly given to the public forthwith.

But, very shortly afterwards, a skillful botanist, well up in roses, M. Crepin, sent word to us, through M. Linden, that our new rose was very probably *R. rugosa* of Thunberg, adding that this species was common in England, where it was known as the "hedgehog" rose. We accordingly lost no time in acknowledging the receipt of the communication, and promised to institute

[GODETIA DUNNETTII.]

inquiries into the matter and to publish the results. This promise we now redeem.

The explanation, put forward voluntarily and in all good faith, nevertheless failed to satisfy certain of the smaller fry of the profession, who, to push their catalogues, scruple not to bespatter friends as well as foes; narrow-minded, short-sighted, begrudging mortals, the chief products of whose gardens are "cares and an abundance of sour apples," to paraphrase the words of Rabelais.

These gentry at once decided that our rose was an old subject brought out intentionally under a fresh name.

And now for the *facts* elicited by our inquiries. The rose described by us *is not R. rugosa* described by Thunberg and Siebold, and introduced in Europe some time since, although apparently it belongs to the same family, which has been cultivated in Japan from time immemorial, and includes numerous garden varieties. The greater part of these varieties are of higher stature than ours, with more erect port, exceeding four or five feet in height, in place of two o three feet at most, with *double* flowers, some times of a red or purplish color, but most often white. Specimens of the plant were imported a good while ago, and some of them are still in cultivation; we have seen several, notably a very fine one in the Paris Museum. As regards our inquiries in England, we have been unable to learn anything of the "hedgehog rose," which must have sprung up in our critic's brain.

According to Siebold and Zuccarini (*Flora Japonica*, vol. xxviii. p. 66,) the plant is called in Japan *Hama-nasi*, literally, "the waterside pear," in allusion to its pyriform fruit. Bunge says that it grows on sandy soils on the banks of streams, and that he has seen it cultivated in the North of China. Very probably the roses admired by La. Peyrouse on the coast of Tartary belonged to this species, which may well be closely related to, or, as Siebold supposes, identical with, *R. kamschatica*. In China it has been grown since the days of the Sung (?) dynasty, A. D. 1100; and the ladies of the Imperial Court are said to make a choice *pot-pourri* of its petals intermixed with musk and camphor.

We have said that our rose is *not* that introduced in Europe some time since under the name *R. rugosa*. Now let us see whether it corresponds with the type so minutely described by Siebold and Zuccarini in *Flora Japonica*. In place of a long dissertation, we prefer to show the differences subsisting between the described type and the specimen before us, in a tabular form.

R. RUGOSA, Thunberg.	R. REGELIANA, Linden & Andre.
Plant under cultivation 4 to 5 ft. in height, with *erect port*.	Plant 2 to 3 ft. in height *at most*, half rambling.
Leaflets mostly with 7 to 9 *folioles*.	Leaflets with at most 5 to 7 *folioles* on all specimens examined.
Stipules very *entire* or obscurely serrated.	Stipules glaucescent beneath and irregularly *dentate*.
Flowers *solitary*.	Flowers numerous, in magnificent terminal corymbs on vigorous branchlets.
Peduncles *unarmed*, or with prickles on lower portions only, pilose with pubescent pointed bracts.	Peduncles with numerous prickles on every part, and glaucescent dentate bracts.
Calyx with 5 *spreading, pubescent, upright sepals* compressing the fruit when ripe.	Calyx with 5, 6, 8 reflexed, shining, prickly sepals, *not* inclining upwards or compressing the fruit.
Corolla red, often white in cultivated specimens.	Corolla poppy-red.

We consider it needless to insist upon differences so obvious: the reader will have already formed his own conclusions. We pass over other characteristics described in minute detail in the *Flora Japonica*, as these would necessitate a fresh comparison, and in reality are not essential to the determination of the point at issue.

If it be admitted that there are differences between the above descriptions, our species ought to stand good. We ourselves have no doubt about the matter. Still, we believe, as we have observed above, that our plant belongs to the *rugosa* type, although it differs therefrom, just as we find cultivated varieties of other roses changing their characteristics without leaving any room for doubt as to their true origin.

Very certainly the plant brought over by M. Maximowicz, if not a hybrid, is a variety (whether natural or artificial we cannot say) of Thunberg's species; and we do not hesitate to repeat what we have before asserted—that it is a very beautiful plant, which well deserves to be more widely known and distributed.

This choice and distinctive variety should therefore, as it seems to us, be hereafter known definitely under the name of *Rosa rugosa Regeliana*.—ED. ANDRE, in *Illust. Hort.*

[We are rather astonished that Mr. Andre should not "be able to learn anything of the hedgehog" rose in England. One was well known there thirty years ago, and this one was *R. Kamschatica*. This rose by the way is well worthy of the attention of American cultivators, for the great richness of the large rosy petals, and for the delicious fragrance of the flowers, much sweeter than any rose we know. The genuine *Rosa cinnamomea* of the Rocky mountains not excepted.—ED. G. M.]

HORTICULTURAL NOTICES.

AMERICAN POMOLOGICAL SOCIETY.

The meeting of the American Pomological Society this season in Boston, was in some respects an event long to be remembered by those who participated. The regular business accomplished was not wholly as full as was expected; but on the other hand, this being a quarter centennial, it was expected that much more time would be given to social enjoyment than usual, and in these high expectations the members were by no means disappointed.

As the guests of the Massachusetts Horticultural Society, the Hall was given to the Pomological Society for its fruit collection; and the meeting was opened by an address of welcome from President W. C. Strong, and responded to by President Wilder. The President's address we shall give in full.

In the election of officers there was some feeling in regard to the Secretaryship. Mr. Elliott announced that he positively and absolutely declined a re-nomination. Mr. E. had acted injudiciously on several occasions, and it was felt by a number of good men who wished well to the Society, that these slips ought not to pass by unrebuked. On the other hand, the earnestness and industry he had displayed in his office, earned him friends who were disposed to overlook his faults. In the large committee on nominations—one from every State—he came within one vote of a re-nomination; and would have had enough, but for two steadily voting against him on the ground that his "absolute declination to serve" ought to be respected, and who would otherwise have voted for him. As it was, Mr. W. C. Flagg was nominated by the committee, and unanimously elected by the meeting, and a vote of thanks heartily, and it seemed unanimously, accorded to Mr. Elliott for his long services. We give these facts in detail because it is well known the opposition to Mr. Elliott in the newspapers was very strong, and in many respects deserved. At the same time it is always pleasant to note that horticulturists, as a rule, with all their provocations, are generally disposed to err on the side of good feeling, if they are to err at all. The next place of meeting was a spirited question; but the feeling that the great West was doing so much for pomology prevailed, and Chicago was selected.

An animated discussion took place on premiums. It was voted that these should never again be awarded or offered; but the Wilder medal might be given for any meritorious object that the Society might deem worthy of special recognition.

Most of the reports of the committees and the essays, were only read by title. They will appear in full in the Society's published proceedings.

In a discussion on list of rejected fruits the wise conclusion was reached: that a balloon which has no gas would soon drop of its own accord, and it was useless labor to pull it down.

About one day was taken up in discussing the fruit catalogue; but as fruits one year praised by one "delegate," are put down by another the next; or perhaps one kicked out of the convention is politely invited to a seat by another, we could not take much interest in this debate, and though we took full notes, we hesitate about publishing. When, for instance, one delegate tells us "the Northern Spy is a complete failure in Western New York," and a Philadelphian knows that Western New York poured into his market Northern Spy apples by the hundreds of barrels last winter, and that these were so remarkably fine that they brought a dollar a barrel more in many instances than some others, it seems hardly worth recording such "failures" as these. We cannot but think these lists can be better prepared by local committees, under the final revision of the General Fruit Committee, than in "open meeting" like this.

The exhibition of fruits in connection with the meeting, was one of the finest ever seen in the Union. Kansas and Nebraska made a magnificent show of apples; and it was difficult to decide which was the best, through the Committee, of which Mr. Dunning was a member, awarded the premium to Nebraska.

The following are the leading premiums:

Pears.—State or society collection, 1st premium, Cambridge Horticultural Society of Massachusetts; 2d premium, Connecticut Horticultural Society; individual collection, 1st premium to Ellwanger & Barry; 2d premium, Hovey & Co.

Grapes.—State or society collection, 1st premium, Ontario Fruit Growers' Association; 2d premium, South Haven Pomological Society of Michigan; individual collection, 1st premium,

J. H. Rickets, Newburg, N. Y.; 2d premium, Hoag & Clark, Lockport, N. Y. For best collection of grapes grown west of the Rocky Mountains, 1st premium, James Rutten, Florea, Cal. Best collection grown under glass, 1st premium, George B. Durfee, Fall River, Mass.

Peaches.—State or society collection, 1st premium, Central Delaware Fruit Growers' Association; 2d, Ontario Fruit Growers' Association, Canada. Individual collection, 1st, David F. Myers, Delaware.

Plums.—State or society collection, 1st premium, Ontario Fruit Growers' Association; 2d, Deseret Agricultural Association of Utah. Individual, 1st, C. H. Greenman, Milton, Wis.; 2d, G. P. Peffer, Pewaukee, Wis.

And the Committee on special premiums on meritorious objects, not provided for in the regular awards, recommended silver medals to the Fruit Committee of the State of Vermont, per D. Bryant, to Fruit Growers' Society of Ontario—the grapes here were particularly admired; Mr. Clapp for the effort to improve the pear, as evidenced by a large collection exhibited, and others for a splendid dish of the Clapp's Favorite; to Mr. Ricketts for a similar effort on grapes—fifty seedlings of good quality being presented; Polk County Association and Horticultural Society of Iowa for collection of fruits; South Haven Pomological and Horticultural Society for collection of fruits; Geo. B. Burfee, Fall River, Mass. for a large collection of foreign grapes; the Deseret Agricultural Society of Salt Lake City, a bronze medal. A large number of these arrived in poor condition, and were not exhibited, or might have compared with some of the best. There were many others which are honorably mentioned in Committees' report.

Among the newer fruits exhibited, there seemed none which would, with certainty, hold their own in the struggle with hosts already known; in the grape lots, however, were some of great promise. Stephen Hoyt had a very promising one; as also had H. E. Hooker; while there were several in the lot exhibited by Mr. Ricketts.

The exhibition of the Horticultural Society was charming. We have never seen anywhere so much correct taste displayed in arranging the cut flowers, in this respect leaving New York or Philadelphia far behind; but we must defer a more critical notice of this till our next number. The proceedings wound up by an elegant banquet, which will be remembered by those who participated. Here Mr. Wilder made one of the most beautiful addresses he ever gave—so beautiful, that by special request of some who heard it, we cheerfully give place to one of the most telling portions. It was in reply to Mr. Strong's address of welcome:

You have been pleased to allude to me in connection with Horticulture as well as Pomology. Well, sir, let me say that, from my earliest years, I cannot remember the time when I did not love the cultivation of the soil, and the more I am brought into communion with nature, the more am I filled with gratitude to the Giver of all good, that He gave me a love for fruits and flowers, and cast my lot where I might enjoy them, and have sweet intercourse with these lovely objects of creation. And who does not look with wonder and admiration on the infinitude, beauty and perfection of these works of the Hand Divine—the enameled blossom bespangling the orchard with starry spray scarcely less numerous than the glittering hosts above, dancing in rainbow hues and flinging on the breeze a fragrance richer than Ceylon's isles, sweet harbinger of bountiful harvest? The luscious fruits, God's best gift to man, save woman—the velvet peach, mantled with beauty's softest blush, and vieing with the oriency of the morning; the delicious plum, veiled with silvery bloom over robes of purple or cloth of vegetable gold; the royal grape, the brilliant cherry, the melting pear and the burnished apple, tempting human taste from the mother of our race to her last fair daughter. But what pencil can sketch the changing hues, the magnificence and glory when Pomona pours from her ever flowing lap the varied treasures of the ripening year. Here are creations originally pronounced *very good.* Here are beauties which fade only to reappear again. From the beginning there seems to have been an intimate connection between trees and man. Trees are spoken of as though man could not live without them, as though Divine Beneficence had given them to us as companions for life, and as emblems of all that is beautiful in imagery, excellent in character, or hopeful in destiny. Our trees—from the opening bud to the golden harvest—from the laying off of their autumnal livery, and during their rest in winter's shroud, waiting a resurrection to a new and superior life—are all eloquent preachers, proclaiming to our inmost soul, "The hand that made us is Divine." God gave us trees adorned with inimitable beauty, pleasant to the sight and good for

food. He gave us also a natural and instinctive love for them. Witness the love of Abraham desiring to have all the trees that were in the field, and on the border round about—of Rosseau longing to be laid under his own sequestered tree—of Temple directing that his heart should be buried beneath the tree of his own planting—of Washington returning to the cherished groves of Mount Vernon—of Webster reclining in life, and sleeping in death under the umbrageous elms of Marshfield—of our own Downing, whose genius lives in trees which adorn many a lovely landscape, many a beautiful garden, and many a fruitful orchard in our land. But, Mr. President, I must not prolong this train of thought. Permit me again to thank you, Mr. President, for the numerous courtesies and hospitalities which have been received at your hands, and those of our fellow-citizens, and especially for the pleasures of this occasion, and the brilliant assemblage with which you have surrounded us.

PENNA. HORTICULTURAL SOCIETY.

Never since its organization has this Society held so successful a meeting as the one on the 17, 18, and 19 of the past month in Philadelphia.

The number of separate exhibitors was very heavy, and the quality of the fruits, flowers, and vegetables, much better than the average. The number of visitors to the Hall from the city was at least as great as it has ever been; but the most pleasant feature of the occasion, was the large number of amateur and commercial horticulturists from all parts of the Union. In this respect the meeting was a much greater success than ever before; and the officers have the satisfaction of knowing that the influence which they have so long been instrumental in extending over gardening taste in Philadelphia, is slowly flowing over the whole land. At this late date we cannot give any further account now, but may attempt a sketch of the salient points in our next.

ACADEMY OF NATURAL SCIENCES.

At the September 9th meeting of the Philadelphia Academy of Natural Sciences, among the distinguished visitors present were Prof. C. V. Riley of St. Louis, and Dr. J. E. Planchon, professor of botany at Montpellier in France, the latter of whom is now in this country under authority of the French Government, to investigate our grape diseases. By invitation of the President, Dr. Ruschenber, Prof. Riley gave an account of the *Phyllaxera* or grape vine root-louse, with his most recent discoveries in regard to the same. He had little doubt but the insect was at the root of most diseases that attack the grape in this country, as it was certainly in Europe. Prof Leidy inquired of Mr. Riley the true position of the insect in scientific classification; Prof. Riley replied that it was not yet well settled. Its appearance brought it somewhere near the aphids, but it did not have successive broods from one impregnation; aphids did. In this respect it approaches *coccus*. He thought it between the two families.

Prof. Planchon described the ravages of the insect on the grape-roots in France, and thought them less destructive on the roots of American species of grapes than the European; and one of the objects of his mission was to ascertain this fact definitely, so that in Europe some American vines might be used as stocks for their vineyards.

It was clear from the fact, that the European vines had been but recently attacked by it, and had suffered so severely from it; while in America—the home of the insect—the wild vines had done tolerably well for so many ages, that the vitis vinifera with it was more of a favorite. He excused himself from any lengthy remarks on account of his limited English, and would briefly say, that he agreed entirely with Prof. Riley's views regarding it.

Mr. Thomas Meehan gave a history of grape-culture and grape-diseases in Pennsylvania from the earliest time to the present, and showed that the failures had never been satisfactorily explained on any theory sometimes given, such as change of climate, or depletion of the soil. There were always some facts or figures which rendered every previous theory inadmissible to his mind, as he had frequently stated in other places. Prof. Riley's insect discovery, however, met all the requirements of the case, so as to give an air of possibility to Mr. Riley's views, such as no other theory has possessed. That when we saw the foreign grape and others which often did perfectly well for years in one locality, and then failed, it seemed absurd to suppose that the climate or soil suddenly gave out; but a sudden incursion of a brood of root-insects was a cause that could have such a sudden effect.

Dr. Joseph Carson gave an account of vines in a city garden, doing well for several years, and then suddenly failing, while climatic changes must have remained unchanged. He was satisfied, from many circumstances, that failure, whatever it was, proceeded in the first place through imperfect roots.

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HINTS FOR NOVEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

As soon as the ground gets caked with the first real frost, herbaceous plants should be protected. Though hardy, they will repay this extra care,—mostly natives of woods or grassy places in their native state, they expect a covering of leaves or dry grass. We find dry leaves the best material for the purpose, a few inches is a sufficient depth,—a little soil being thrown on to prevent the leaves blowing away. Where such material is not at hand, the common garden soil may be drawn over them, as before recommended in these pages.

One of the worst materials for production, especially about half-hardy evergreens, is fresh stable manure, saturated with ammoniacal salts, one might as well have dogs innumerable about them, which every one knows to his sorrow is misery to an evergreen.

In the culture of herbaceous plants it is well to remember that generally a part dies every year. They seldom come up in exactly the same place every year, but a bud or runner pushes out and the old part dies. Though all herbaceous plants move in some such manner, they do not all go directly under ground, but make bunchy stocks just above ground. In their native places of growth they manage to get covered with decaying leaves from the woods or shifting sands on the plains, but in cultivation nothing of this kind can be naturally accomplished, and unless art comes to aid the plant they soon die away. An Auricula, a Primrose, or a Carnation is a good illustration of this. In the two former a new crown is formed on the top of the old one, and as the lower parts in time die away, unless new earth is drawn up, success with such flowers will not be great. The best plan is to take up and replant every few years, or cover the running parts above ground with earth, so that they may have a chance to get new roots from the advancing stocks. This is noticed here at this season to show that earth is the natural covering for herbaceous plants, and therefore one of the surest ways of preserving them safe through winter is to draw earth over them. In the spring they can be unearthed and then divided and set a trifle deeper than before, which is all they want. We are often asked how to preserve Carnations, Chrysanthemums, Pansies, Phloxes, Hollyhocks and so forth, safe till spring. The principles here laid down will explain the practice.

There is some danger of Pampas Grass rotting by moisture getting down in the hollow of the leaves into the heart of the stem. A friend tell us he guards against this by burning off the old leaves of the Pampas before putting the dry leaf covering on.

One of the last thought of things, too frequently, is to apply manure to flower beds. But it is scarcely less essential to a fine summer display, than it is to the production of fine vegetables; and certainly as necessary as to trees, or the lawn. Still it should be applied with caution. While a poor soil will only grow plants to a diminutive miniature size, which, though clothed with a profusion of small, starved-looking blossoms, make to show; a soil over rich will cause too great a luxuriance of foliage, which is always opposed to an abundance of bloom. In most

cases we prefer half-decayed leaves—where these could not be had we would use stable manure. The former spread over the soil two inches thick, or the latter one inch, would form a dressing which, in ordinary cases, should last two or three years. It is difficult to get flowers to do well in even the most favorable soil, if it is liable to hold water to stagnation in winter. Where flower-gardens or beds exist under such circumstances, advantage should be taken of the present season to have it thoroughly underdrained It will be more beneficial in the end than the most judicious manuring; it is indeed in itself a powerful means of fertilizing the soil. Where circumstances render the draining of such places inconvenient, a temporary advantage can be gained by digging up the soil at this season very roughly, so as to expose as much as possible to the action of the frost. This is at best but putting a patch on an old garment—an apology for the want of means to do better.

Most of the tender plants that we desire to preserve over the season, have now been lifted from the borders, and removed to winter quarters,—and in a few weeks the beds will present a rough and forsaken appearance. It is too often the practice to leave the borders just in this neglected condition till spring-time returns. But the person of true taste finishes up the beds, and makes all tidy. In the absence of summer flowers, even order pleases.

As soon as the first white frost has awakened *Dahlia leaves*, the stems should be cut back to a few inches of the ground, the label securely fastened, and the root placed away in a cool place secure from frost till next March, when it should be "sprouted," divided and again set out. Madeira vines tigridias, gladiolus, tuberoses, &c., require the same attention.

FRUIT GARDEN.

So much has been said in this journal on the proper preparation of the soil for orchards, that it need not now be repeated. We should only say, that a light dryish soil is the best to choose for the Peach. The Pear does best on a strong loamy soil. Plums much the same as the last. The Apple prefers a heavy loam, if on limestone so much the better. The Cherry does well in soil adapted to the Peach

If, however, a fruit orchard is dry and properly top dressed annually, there is not much difference in the value of soils for fruit orchard. With rich decaying vegetable matter abundantly supplied to the trees, they will do well enough in most kind of soil.

Whatever pruning trees may require, is best done early if one have the time. On this account, however, it is generally deferred to towards spring when there is more leisure.

Apples, Quinces and Plums, should be examined before frost sets in, and if any borers have effected a lodgment, a jack-knife and strong piece of wire are all the implements necessary; a man will go over several hundred trees a day. It is a cheap way of preserving trees. If many of the remedies proposed by correspondents in our paper, have been tried and found effectual, such as tobacco stems, &c., there will be few borers to deal with in the examination. After getting out the borers, a piece of any kind of paper lapped around the collar of the trees, and the paper gas-tarred, will keep out all future borers, as well as be a safeguard against mice and rabbits.

Probably most of our fruits do best in partial shade. The gooseberry and currant certainly do. The former must have shade; and if on the moist northern aspect of a wall, so much the better. The raspberry prefers a rather moist soil, and partial shade.

Where currants, gooseberries and raspberries are not to be disturbed, old low stalks thrown thickly in about the plants and allowed to remain and rot away, keep the roots cool, and makes a condition of things in which these three kinds of fruit luxuriate.

In cultivating raspberries on a large scale they do best in hills, as the cultivator keeps them from crowding each other so much. For garden culture they are better in rows, the suckers to be kept hoed out occasionally as they grow; enough only being left that will be required for fruiting next year. Where canes are required for new plantations, of course a portion of the crop must be sacrificed to the suckers.

In choosing pears, select those that have been budded close to the ground, as when they are replanted the stocks should be buried an inch below the pear scion, which prevents the attacks of the quince borer. If a long stem has to be buried, the usual consequences of deep planting result, and do as much injury as the quince borer. Also in choosing, select, if possible, plants that have been raised from cuttings; for layered stocks have almost always a long deep

tap looking root, on which dwarf pears do not do well. If we have to use such dwarf pear trees, better shorten some of this long trunk root before planting. Never plant what appears to be the stem of a tree far beneath the surface, under any circumstances, for disease will be most probably an ultimate consequence.

VEGETABLE GARDEN.

It is little use to attempt to grow vegetables well, unless the soil is well treated. They may be and are grown on thin soils, not only at a great expense for manure, and at a great risk of dying out in a dry season, and of having the roots rotted out in a wet one. In those parts where the frost has not yet been severe enough to injure the celery crop, it may have another earthing up. Care must be exercised in the operation not to let the earth get into the hearts of the plants, or they will be liable to rot. Where the plant has evidently finished its growth for the season measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. Where large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be readily accessible. There are so many ways of preserving celery, it is hard to say which is the best. Besides these two suggestions, one described a few years ago as being in use in southern Pennsylvania, may be good where but a few are required.

At this season a barrel is sunk into the ground, and a little mud made at the bottom. Then the plants are taken up on a dry day and set thickly in the barrel, which is then covered. In this way it keeps clear of frost, and is easily got at at any time. Another plan, also described in formmer numbers of the *Monthly*, is to stock the celery in a conical manner, so that there is an incline downwards in each stalk, which will keep the water from running into the heart. Earth is put between each layer of stalks, and the frost kept from the earth. It always keeps best in the natural soil, where it is cool and moist and free from frost, and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips, and other root crops, will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar, or buried in the soil, heads downward, to keep out the rain, or laid on their sides as thickly as they can be placed. nearly covered with soil, and then completely covered with corn stalks, litter, or any protecting material. The main object in protecting all these kinds of vegetables is to prevent their growth by keeping them as cool as possible, and to prevent shrivelling by keeping them moist. Cabbage plants, lettuce, and spinach sown last September, will require a slight protection. This is usually done by scattering straw loosely over. The intention is principally to check the frequent thawings, which draw the plants out of the ground.

In making new vegetable gardens, a south-east aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing to a great run of water in heavy rains. The pots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If water can be introduced, it is a great convenience.

Sometimes broccoli does not head before there is danger of frosts, especially if growing vigorously. If taken up with small balls of earth, and set in a damp cellar, they will still perfect themselves.

Asparagus beds, after the tops have been cleared off, are better covered with litter or stable manure. The plants shoot easier for it next season.

When the ground becomes frozen, or no other work offers, preparation can always be made for advancing prospective work when it arrives. Bean-poles may be made ; and if the ends are charred, and then dipped in coal tar, the commonest material will be rendered nearly equal to the best cedar.

COMMUNICATIONS.

RECOLLECTIONS OF PARRAMATTA, SYDNEY, AND BOTANY BAY, NEW SOUTH WALES.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

In the sylvan groves of Australia there are many Paradisiacal scenes, over which the gentle goddess, "Fair Flora," spreads her wings, and lavishly scatters fresh flowers over forest and field. Exquisite aromas, like heavenly incense, ascend from her altars, and are lovingly wafted by her soft pinions as she hovers around.

There is a strange fascination we feel in the midst of such enchanting Arcadias, which almost makes us forget we are mortal, while meandering through the leafy labyrinths. Such matchless loveliness of landscape often arrests the enthusiastic traveler's attention. They are veritable "beauty spots" on the fair and comely face of nature, and which could not possibly be improved by the hand of man, however majestical his touch. As the Great Architect fashioned them in primeval times, so they remain—even now. Bright and beautiful are the pictures still, only mellowed with the tints of time. In memory, they will ever remain fresh and green. Nor will the Master be forgotten, whose divine pencil so sublimely portrayed on terrestrial canvas, such celestial scenes.

There is a pleasing refrain in one of Moore's delightful songs, and which I could almost fancy I heard again, the "sweet melody, in music's softest tune," as it seemed to reach through the silent woodlands.

> "And oh! if there be an Elysium on earth,
> It is this, it is this!"

Much as I have seen in "the wide, wide world," I am free to admit that Australia presents some of the most savage and sombre scenes, blended with the picturesque, the romantic, the flowery, grand and beautiful, I ever beheld. There is little sameness, but much variety, in the broad expansive plains, the illimitable forests, the flower belted streams, the dense scrub, the open glades, the impenetrable jungles, the mountain and moorlands, the deep defiles, the hills and dales, the mossy ravines, the sandy plains, the ferny glens, the sunny slopes, the rolling meadows and cultivated lands, where Horticulture and Agriculture unite, fit emblems of peace and plenty.

There are but few routes a traveler can take in any part of the world, more agreeable or delightful, than the one we are following, on our way to Parramatta and Sydney. The ever varying scenery as we pass along, seems like unrolling an immense panorama of the most beautiful landscape sketches. Village, hamlet and grange, succeed each other on the way, and present a unique picture of "rural felicity" of the happiest type. Well was it said, "God made the country," where the most romantic-looking cottages imaginable, embowered in bushes of beautiful evergreen shrubs and trees, peep out from behind curtains of Kennedias, Sollyas, Teconas, Hardenbergias and Passifloras, most lovingly. Every style of architecture were to be seen, and all in good taste, harmonized with the surroundings. It is doubtful if F. R. Elliott, or Robert Morris Copeland, the eminent landscapists,—masters of the art of beautifying and adorning "country life," could have excelled, in their specialty, their brotherhood of the Antipodes. Trees of majestic form overshadowed sweet flowers of every hue, which emitted their exquisite perfumes from the cedar-like gardens around. Rich and rare looking fruit hung temptingly on the trees and vines. Heavy bunches of White Syrian grapes, Malagas, Muscats, and Black Hamburghs, which would have compared favorably with Speechly's big bunches, and delight the eyes and heart of the good old man, if he could have seen them. Coming again to the dividing line, we crossed a little stream in the valley, whose sinuous windings coursed gently onwards to the Indian Ocean, while the other streams flowing westward, run to the Pacific.

Still pushing onwards we passed through several deep gorges in the shady valleys; through brake and glen, over mountains and meadowlands where the shepherd tends his flocks, and the husbandman tills his soil, and where all seemed "as happy as the little plow-boy that whistles o'er the lea." In the distance the Blue Mountains loomed up before us, and the Nepean River sparkled in the midday sun. Some splendid specimens of palms, Corypha australis, with a number of the peculiar, though beautiful

genus, Pandanus: of which spiralis and pedunculata were very handsome. In pendulous masses of dark green, mingled with heavier and broader foliage, were some gems of Casuarinas. An occasional tree fern, Alsophila australis, had spread their magnificent fronds above the Chorizemas and Boronias upwards of fifty feet high. With the exception of the elegant Dicksonias I saw in New Zealand, I think they were the most suberb types of cryptogamic beauty I ever beheld. They are often met with along the river banks. Also Blandfordia aurea, a large and showy umbellated plant, bearing a profusion of bright yellow flowers. Xyris lœvis, another singular plant, resembling a tussock of rushes densely covered with pretty golden florets. The latter would be a charming plant for an aquarium. In the somewhat famous and interesting district of Wagga wagga on the Murrumbridge river, Victoria, they grow in great luxuriance. X. altissima especially so, and which frequently attains to from ten to fourteen feet high, and are generally backed up with the glossy leaved nettle, Urtica photelnophylla, growing from thirty to forty feet high. With some pretty Elœodendrum integrifolium, I met with for the first time in New South Wales, Gela oblongifolia and Spermaxyron stricta, the latter of an olive-like habit, and some ten feet high. On the higher grounds saw some beautiful bushes of Lissanthus strigosus and L. daphnoides, two very interesting evergreen shrubs, nearly allied to the Epacris, which they much resemble. When in bloom, they are literally covered with pretty white flowers. The colonists use them as hedge plants, and as they form a dense growth, are well adapted for such uses. Adjacent were some pretty clumps of Lomatia silicifolia, and L. longifolia, the former sprinkled with orange-colored flowers, and the latter green. Both are handsome evegreen Protaceous shrubs, and are highly ornamental in the conservatory.

Journeying onwards from the beautiful Nepean to Pewrith, passed over a sand barren, a flat and unfertile spot, desolate in the extreme. Of all living creatures, a "lonely pelican in the wilderness" was to be seen. I pitied the poor and wretched-looking bird, as he stood silent, and solemnly gazing at the bottom of the dried up water-course. There seemed a melancholy sadness in the expression of his pinched up features, while meditating on piscatorial delusions, and speculating on the very doubtful chances of obtaining a fugitive minnow.

Leaving the dreary scene, we soon again entered a most delightful country, and after a two days journey, reached Parramatta. It is one of the most beautiful and pleasant little towns I ever tarried in. A paradise indeed! Of the many charming and attractive places I have seen. I do not remember one to surpass this. Here the useful and beautiful in nature have lovingly united together; while the freshness of its sunny and cheerful surroundings exhilarate and gladden the feelings. Such charming scenes leave their impress on the heart, and bring back to memory some of the happiest recollections of life. It was here where "Flora and Pomona," surrounded by fruits and flowers, presided over the royal court of nature in all their glory. The morning air was gently diffusing the "balm of a thousand of flowers" from the gay parterres, gardens and flower-grounds, which adorn the residences of the colonial *magnates* and *grandees*, so pleasantly located there. The delicious aroma of citron blossoms pervades the atmosphere with the most exquisite perfume. Heavy laden orange trees, literally bending beneath their burdens of fruit, and in the richest luxuriance of growth, hung temptingly on every side. Like golden globes plentifully interspersed among the dark green foliage, they were indeed "pleasant to the sight and good for food." In all countries where they florish without protection, they are much prized, and justly so, both on account of their beauty as evergreens, as well as for the quantity of wholesome fruit they yield.

The good reader, who has had no other opportunity of judging the flavor of oranges, than from tasting the shriveled, bitter and sour trash bought at the fruit stores, which are plucked while green from the trees, and shipped off to ripen, or rather to sweat, and turn yellow on the passage, can have but a faint idea of how sweet and luscious they are when gathered fresh and fully ripe from the trees. In Florida and California I have seen some fine plantations in full bearing, and a beautiful sight they were.

(*To be Continued.*)

ADDRESS OF MARSHALL P. WILDER,

AT BOSTON, SEPTEMBER 10TH.

(*Concluded from September Number.*)

NEW FRUITS.

But to accomplish this most desirable result, and to fulfil our mission of supplying every section of our country with fruits suited to its own

locality, we must rely mainly on those originated on American soil. Bound by my promise in former addresses, to ever recognize the importance of this duty, I again invoke your attention to the consideration of this subject. The good results already attrained are but the harbingers of still more glorious rewards. We have discussed at length the various processes of Van Mons, Knight, Esperen, and others of the old world, but whatever may be said of the superior fruits produced by them, we have the strongest proofs that the clear sky and warm summers of our American climate are far more favorable for propitious results than theirs, and that such circumstances will conduce to the health and longevity of a variety. Especially is this the case in California, where almost all the products of the vegetable world come to perfection. From past experience it seems probable that the deterioration of certain varieties of fruits will exist in the future as in the past, and that the same causes, whether from the removal of the forests, or from whatever circumstances, will still continue Hence the necessity of raising new varieties to supply the places of those that decline. Happily this degeneracy is confined to the apple and pear, affecting the pear more particularly, while in the cherry, peach, plum, strawberry and small fruits generally, there are no signs of this deterioration.

That as fine fruits can be raised from seed here as have been produced in any other country, there is no longer a doubt. That this is the plan prescribed by our bountiful Creator for their production and improvement, is equally true. That there is any limit to its progress and extent, we have no reason to believe. True, the number of superior fruits is small compared with the host of indifferent varieties that have come down to us from the past. One reason for this is, that our taste for finer fruits has been elevated to a higher standard, and those of an indifferent or medium quality fall out by the way; and we have no doubt that the old pears so highly lauded by historians, were most, if not all of them, only course unmelting kinds.

When we reflect upon what has been accomplished in the improvement of animals and vegetables in our own day, and how many splendid acquisitions have been brought forth that command the admiration of the world,—when we reflect upon the many fine American fruits already obtained with but comparatively little effort we surely have cause for great encouragement and perseverance. There is no limit to progress now or hereafter, and we believe that the fruits of this earth are to become more and more perfect as time advances. The march of science is ever onward and upward, and it is our duty to keep pace with it. What has been done can be done again, and will be done, until the final culmination of all created things. Then let us not be discouraged by obstacles or disappointments, but,—

> "Let us act, that each to-morrow
> Find us further than to-day."

If a pear like the Bartlett or Beurre d'Anjou can be produced which shall be suited to every section, then another of like or better quality can be created and possess the same adaptation. Nor is there any reason why a strawberry like the Wilson, or a grape like the Concord, may not be raised of a far better quality, and yet possess all the other valuable characteristics of these varieties. That there may be a point beyond which a fruit is not susceptible of improvement as believed by some, we can not aver, but that most of our varieties fall short of this perfection all will agree. When we consider the character of the fruits which have come down to us from antiquity, the wonder is not that we have no more of strictly first-class varieties, but that we have already produced so many superior sorts. These considerations afford ample evidence of the tendency towards improvement, and lead us to the belief that by planting the seeds of our best varieties we shall advance still further towards perfection.

Duhamel, Poiteau, and their contemporaries, after repeated trials with the seeds of the old varieties, produced but few worthy of note. It was reserved for Esperen, Gregoire, Bivort, Berckmans, and other modern experimentors, who sowed the seeds of improved sorts, to give us most of the fine new varieties which now adorn our tables. In confirmation of this opinion we have numerous instances in our own country. Witness the seedling pears of the Messrs. Dana, Clapp, and Shurtleff, of this vicinity, and especially the extraordinary productions of Mr. Fox, of California. In these we have an illustration of what can be accomplished in the space of a few years, by the sowing of the seeds of modern varieties. In Mr. Fox's experiment we have, also, an evidence of the influences of virgin soil, high temperature, and clear atmosphere, giving us token of a like advantages which we expect to derive from the new lands of

our western friends, in the production of fine varieties. We may add in regard to Mr. Fox's seedling pears, that we know not how to account for the strong evidence of natural cross fertilization which they exhibit, unless it was caused by the favorable climatic influences, which we have just mentioned.

Formerly we were obliged to rely mostly on imported kinds for our best fruits, but as time progresses these are gradually disappearing, and their places are being filled by those of American origin. Of the forty-three kinds of plums in our catalogue, more than half are American. Of the fifty-eight kinds of peaches, more than two-thirds are American, and in fact very few others are much in cultivation. Of the nineteen kinds of strawberries, all but three are American Of thirty-one varieties of hardy grapes, all are American. Thus of these fruits we have in our catalogue at the present time, one hundred and fifty-one varieties, and with the exception of thirty-seven, all are of American origin. Thus may we go on rising higher and higher in the scale of excellence, looking forward with bright anticipations to the time when through the influence of these examples, and of our own and kindred associations, our catalogue shall be filled with varieties of American origin, and every part of our country rejoice in fruits born on the soil on which we live.

Why it is only about a century since Van Mons, Knight, and the great pomologist of Europe were born. It is within the present century that Coxe, Thomas, Buel, Prince, Lowell, Manning, and Kenrick commenced the efforts to improve the pomology of our country. It is within a much later period that the Downings. the younger Thomas, Kirtland, Hovey, Ellwanger and Barry, Brinckle, Kennicott, Warder, Elliott, Berckmans, commenced their operations for the advancement of this cause. These considerations should excite us to greater enterprise and renewed exertions. This is the great work of the American Pomological Society. We have but just entered upon it. How vast and inviting the field that lies spread out before us! Some of these thoughts, perhaps in another form, I may have presented to you before, but it is by line upon line and precept upon precept, that I desire to enforce my advice; and were I never to address you again I would repeat the council I have so often given, in regard to the production of new and fine fruits, viz:

"*To plant the most mature and perfect seeds of the most hardy, vigorous and valuable varieties; and as a shorter process insuring more certain and happy results, cross or hybridize your best fruits.*"

Before many years shall have passed my voice will be hushed in that stillness which knows no waking; but while I live I would continue to impress on your minds the importance of the beneficent work of providing these blessings for generations to come; and when I am dead I would by these words still speak to you. Thus will you advance one of the most delightful and important industries of the world; thus will you build up a pomology for the most favored nation upon which the sun ever shone; thus will you contribute to the welfare of home, kindred and country, and transmit your names to future generations as benefactors of your race—

"Our lips shall tell them to our sons,
And they again to theirs,
That generations yet unborn
May teach them to their heirs."

CATALOGUE.

In this collection I desire to refer to our catalogue of fruits as the most important achievement of our Society. This was the first attempt in this country to suppress by common consent our inferior fruits from cultivation, and to define the adaptation and value of approved varieties to a wide-spread territory. Few can have an idea of the patient investigation which this has received from the committee, from its first preparation by Mr. Barry, in 1860, down to the present time. With the issue of this catalogue commenced a new era in the literature of American Pomology, by which every section of our country and the Provinces of British America were to be acknowledged and recognized in its classification.

At the time of its first publication it was issued in octavo form, but in less than ten years we have been obliged to enlarge it to quarter form, so as to admit additional columns for the new States and territories coming within our jurisdiction. Instead of the fifty-four varieties of fruit recommended in 1848, this catalogue now contains the names of five hundred and seventy-seven kinds, and with the list of six hundred and twenty-five rejected varieties passed upon by the Society, makes a total of twelve hundred and two on which the Society has set its seal of approval or rejection. An important part of this work, not shown by these figures, is the reduction of our list as compared with former catalogues, by striking out varieties too good to

be placed in our rejected list, yet superseded by better sorts. In pears alone, this reduction has been from one hundred and twenty-two to ninety-one kinds. And thus it should ever be our aim to condense our list into as small a number of varieties as possible. When we consider that our catalogue embraces in its columns fifty States and territories, including the Province of British America, with great diversities of soil and climate; that some of the new districts have but little experience in fruit-culture; and that from them we have consequently limited reports, we can readily appreciate the difficulties attendant on this great work.

It was an important step taken by the Society when it placed its mark of condemnation on the long list of unworthy fruits which were then in our collection, thereby saving to cultivators a vast amount of time, trouble and expense in the propagation of useless varieties. But a great and important work, requiring the utmost caution, is still before us, to avoid in the future the insertion in its pages of the names of inferior or insufficiently tested fruits, and to establish a correct nomenclature for all time, so that with every revision of our catalogue it may more nearly approximate to perfection. To aid in this most desirable work, the various State and local committees should keep well organized, and from time to time transmit to the General Chairman of the Fruit Committee all the information which is required in their several districts. It was the original object of the catalogue, and must always continue to be its aim, to restrict the worthless or indifferent kinds, to discover and retain the most valuable, and to furnish to all sections the fruits best adapted to their respective localities.

For the purpose of perfecting our catalogue, a meeting of the Committees on Revisions was held at Rochester, New York, soon after our last session.

After several days of deliberation the present form, and the new plan of making three general divisions, and arranging the States in their order of climatic and characteristic association in regard to fruit culture was adopted. This was a work of much difficulty, but I am happy to learn that it is regarded with great favor as a most important improvement, and will constitute, it is believed, through the united efforts of our members, ultimately the acknowledged authority of the country.

DECEASED MEMBERS.

While we rejoice in the presence of so many of our members on this occasion, we are reminded of the absence of some who have been removed by death. Since our last biennial session two Vice-Presidents, and one Ex-Vice-President, have deceased.

I allude to Lawrence Young and John S. Downer, of Kentucky, and Dr. J. S. Curtis, of California. Mr. Lawrence Young was an early member of our association, and for a long course of years held the office of Vice-President for the State of Kentucky. He was born on the 6th of December, 1793, in Caroline County, Virginia. He showed an early taste for knowledge, and made himself well acquainted with all branches of learning, especially with the science of Agriculture and Horticulture, and by his interest and example he learned others to appreciate what he so dearly loved. He was not only a scientific, but a practical cultivator of fruits, and for these labors his own and adjoining States often expressed their obligations. For many years he was the Agricultural Editor of the *Louisville Journal*. In later years he edited the *Western Ruralist*, and for thirty years he compiled a monthly meteorological table for the Smithsonian Institute. Besides being Vice-President of this Association, he held the offices of President of the Jefferson County Horticultural Society, and President of the Kentucky Pomological Society. Energy, perseverance, and a love of nature, were prominent traits in his character through life. He died at the ripe old age of seventy-nine years.

Mr. John S. Downer, our Vice-President for Kentucky, who was with us at our last session, has also been removed by death. He was born on the 19th of June, 1809, in Culpepper County, Virginia. His taste for horticulture and pomology dawned with his early years, and while yet a youth he discovered an ardent love for these pursuits which continued through life. In early manhood he established the Forest Nursery, and here from obscure youth, without fame or fortune, he built up an enviable reputation as a Nurseryman and Pomologist. He tested under his own inspection many varieties of fruits, and has done much to improve Pomology in the Central and Southern States, having produced several varieties of fruits which are now extensively cultivated. He devoted much time and patience for the production of new varieties of strawberry, and the Downer's Prolific, the

Charles Downing, and the Kentucky, bear witness to his success. By testing and disseminating other fruits, he has conferred blessings on the pomology, not only of his own region, but on our whole country. He died on the grounds where he first settled, and where in addition to his many attainments, he has left the name of "an honest man, the noblest work of God."

The seat of Dr. Joshua S. Curtis, of Sacramento, California, is also vacated by death. He was one of the representatives of that State, and was elected Vice-President at our last session. He was a gentleman of noble bearing, and much interested in the progress of science, and the elevation of our art. Some of us can remember the interest which he manifested, although for the first time with us, in the welfare for the Society, and the words of counsel and approval which he spoke to us at the festival that closed our meeting at Richmond, and it was his intention to be with us at this session. Dr. Curtis was born in North Carolina, and died in San Joaquin county, California, November, 18, 1872, aged sixty-three years. He graduated at Chapel Hill College, and was also a graduate either of Philadelphia or Baltimore Medical College. He went to Tennessee in 1832, where he extensively engaged in farming and his profession. In 1837 he removed to Holly Springs, Mississippi, owned a cotton plantation, and was the Treasurer of the State. He went to Sacramento, California, in 1850, where he resumed his practice as a physician. A few years afterwards he gave up his profession, and was engaged in farming in Yolo county until the time of his death. He represented that county in the State Legislature. His home was ever open to the poor, and his house was the home of the destitute.

Nor can I close this record of deceased members without allusion to another, formerly connected with us in official relations, who has been called from this to the spirit land. I allude to the Rev. Jeremiah Knox, of Pittsburgh, Penn., who died of apoplexy, Nov. 13, 1872, aged fifty-eight. His father was a minister, which profession he also adopted while at the age of seventeen. He removed to Pittsburg early in life and became eminent in his profession. He was sociable and sympathetic in his instincts, prepossessing in personal appearance, and gifted with oratorical powers. He was an old member, often attended the sessions of this Society, took part in its discussions, and was known throughout our land for his interest in the culture of the grape, the strawberry, and other small fruits. His enterprise in the culture of these was remarkable, and his plantations of the strawberry and blackberry were very extensive He gave to the Triomphe de Gand a new and extensive fame, and distributed far and wide the strawberry, No. 700, of his collection, to which he gave the name of Jucunda. He entered largely into the grape excitement, which existed a few years since, propagating immense quantities of vines, especially Concord, Delaware and Martha. His name as the "Strawberry King," and the proprietor of the Knox fruit farm, will ever be remembered in the annals of American Pomology.

These associates have gone. It has pleased a wise Providence to remove them from the sphere of duty here, but we trust in the hope that we shall one day join them in that better land, where friends shall part no more.

CONCLUSION.

Pardon me, my friends, for the time I have occupied in the performance of a duty required of me by your Constitution

With the close of this session will terminate the first quarter of a century in the history of our national association. We are now about to enter on the second era of its existence. A great work has already been accomplished, but more remains to be done. We have but just entered on the broad field which lies open to us, and gathered a few of its first fruits. Many of its former members have paid the debt of nature, and we, who were among the founders of our institutions, shall soon be called to follow them. But this Society, we believe, will live on to bless the world, and as time progresses the results of your labors in the development of our wonderful resources, will be more and more appreciated. And as our nation advances in wealth and refinement, so will the culture of fruits be better understood, and their importance and usefulness be more fully realized. Willing hands and generous hearts will labor for the same cause, and generation after generation will enjoy the fruits which your hands have planted for them. Persevere, then, my friends, with the noble work in which you are employed. Go on, until our ultimate object is attained, in perfecting one of the most useful and beautiful sciences of the world.

We have traced the progress of American Pomology from a period within fifty years. But

who shall predict its development for the half century to come? Judging from the past, we may anticipate that ere that day shall dawn, our whole continent shall be opened up for use, and the cultivation of fruits, become scarcely secondary to any other branch of rural art. Look at the progress of the past, and estimate, if you can, the increase of the future, when the population of our country shall exceed one hundred millions of souls, as many now living may expect to witness; when our fruits shall be adapted to every section of our land, and become not merely a condiment, but a necessary portion of our food.

Standing, as we do, on the line which divides the past from the present, let us remember with gratitude the labors of those who laid the foundation of this institution—let us remember those who have so assiduously co-operated with us for the advancement of its objects, and let us transmit to posterity the priceless blessings our calling is destined to confer. And as our members, from time to time, shall assemble to gather up the fruit of their research, may they have reason to rejoice more and more in the benefactions which it bestows on mankind; and when at last we shall be called to relinquish the cultivation of our orchards, gardens and vineyards on earth, may be permitted to participate in the cultivation of

> "That tree which bears immortal fruit,
> Without a canker at the root;
> Its healing leaves to us be given,
> Its bloom on earth, its fruit in heaven!"

RAPID POTTING.

BY S. J. HUGHES, CHATHAM, PA.

I saw the boast of Mr. Peter Henderson, in a late number of the *Monthly*, that one of his gardeners potted 10,000 plants in ten hours, as if New York was ahead of all the world. I admit it is fast work; but I have a young man with me that can pot off, and *do it right*, 1100 per hour. So I think that there are some quick fingers in Pennsylvania. Though we may be behind our neighbor in some things, they cannot carry off all prizes.

FRUIT NOTICES.

BY W. H. COX, ANCHORAGE, KY.

I can truthfully say the present has been with us the worst we have had for years. Our winter was of the severest kind, and the spring equally as much so. Orchards bloomed as profusely as could be expected; every one, even the most dependent, anticipated a full crop of all varieties of fruit; but alas! nature forbid. We had a great quantity of rain, followed by cold, chilly weather, continuing far into May, causing the bloom to blight and fruit drop.

The strawberry crop was nearly a failure in some localities, the leading sorts, Wilson, Chas. Downing, French Seedling, and Kentucky, yielded hardly one-third of a crop. The improved varieties of cherries, however, stood the unfavorable season better; but as the Early Purple Guigne were beginning to turn color, that vexatious little pest, the cedar bird, visited the trees in flocks, defying all manner of scare crows, blunderbusses, blank cartridges, and even "grape and cannister;" they swept every thing before them, from the earliest to the latest sorts except they were kind enough to leave us a few Morrellos.

Now that it is time for our early apples to ripen, we go to our orchards, must be contented with a few snarly, weather-beaten scabby Early Harvest, Red Astrachan, Benoni, &c.; and on passing among the fall and winter sorts, just the same picture is before us. Peaches in some localities promise a fair yield,—a remarkable fact there will be more this season than apples. Pears are scarce, more so than any other fruit, but we are only too happy thus far, to announce the almost entire disappearance of the fire blight this year. One or two varieties up to this time have been attacked, the Vicar of Winkfield principally, with an occasional Belle Lucrative, Flemish Beauty and Swan's Orange. It is a prevalent opinion that these varieties, now suffering attacks, must be from diseased limbs or parts of last year. We hope that it is leaving us—it is a terrible scourge. How discouraging to pass through orchards of once beautiful trees, amputated into ugly snags, with a few young shoots barely sufficient to save their lives.

I should like to see Kentucky represented at the American Pomological Society's meeting at Boston in September; and had we the fruit season of last year *this*, we would most assuredly open some one's eyes. We can only trust in the future Why is it that this Society holds its meetings so close to the Atlantic coast? To the members in charge of such matters, I would say "*look* West" for a place of its next meeting. I can name a score of central and available

points, and none more worthy than our beautiful little city, Louisville, easily and quickly reached from all points, capacious and unrivaled hotels, and an abundant hospitality for her guests.

A MEXICAN CLIMBER.

BY JOHN QUILL, GARDENER TO THE CINCINNATI HOSPITAL.

I notice in your *Monthly* for August, an inquiry by Mrs. F., of Canandaigua, N. Y., in regard to the Mexican Climber. Permit me to inform the lady that the true value of her climbers will be unknown to her until she sees her plant in bloom.

The fragrance of this beautiful climber rivals the rose, the mignonette, or the lily When planted in a group, it forms a perfect mass of green foliage, fairly covered over with spikes of delicate white blossoms, sending sweet perfume all around. Should be planted in one half sand the other half loam and leaf mould, in the open ground, and a warm situation.

TREATMENT QF THE BLUE AFRICAN LILY.

BY THOS. F. WEBB, GARDENER TO A. C. GIBSON, JR., OAK LANE, PHILA.

The *Agapanthus Umbellatus* is a native of the Cape of Good Hope, and was introduced into cultivation about 1692. It is the most beautiful variety of this African lily. It has rather broad dark green leaves of a drooping habit, bulbous root, not unlike a coarse leek; throws up in spring from well-grown plants, strong stems, from the top of which comes large bunches of bright blue flowers, each standing on a bold, strong footstalk, making them very valuable for bouquets, baskets, &c. There are two good specimens now in bloom at this place, each having several noble round trusses of flowers on very fine stems. Upon counting the number of blossoms upon some of them, I find there is over ninety, each individual blossom standing well out. It is certainly an excellent decorative plant for the lawn, conservatory, or standing one on each side of entrance door of dwelling-house. If under cover from the sun the bloom will last some time longer than when fully exposed to rains, wind, &c. The individual blossoms are not half the size of the common white or yellow lily; they are, however, much more abundant, and form beautiful objects, and are extremely easy to cultivate. There is also a striped leaved variety at this place: with me it is not so strong a grower as the green leaved kind. It is, however, a very ornamental foliage plant, and contrasts well with the others.

There is a whitish flowered sort called albidus, the only difference between it and umbellatus is the color of the bloom. This noble plant deserves more care than is generally bestowed upon it, and the consequence is, the bloom rises weakly and small, owing to the pots being allowed to fill with offsets. In the first place, purchase as large plants as possible, take the offsets off, then let the main plant be potted in such size pot as will allow of some soil around it, but not much. It delights in a compost of half sandy loam, and well decomposed dung, taking care to well drain the pots. If this is done early in the spring, the plant will be benefited by a little heat to start it. If you have only a greenhouse, place it in the warmest part. Let it grow until the pot is well filled with roots, then shift it into a size larger pot, and continue shifting as often as the roots fill the pot. It ought to bloom by the time the plant has reached a ten or twelve-inch pot. Every offset must be removed as soon as it appears, so that all the strength is thrown into the main plant. By attending to this treatment, and taking care the plant gets abundance of water, it will produce fine bloom, and form a noble object. When it is in flower it may be removed from the greenhouse, stalked, and put out of doors, or what is better, under a verandah, it being a beautiful object, handsome enough to ornament any part of a gentlemen's establishment. As soon as the flower is past, remove the plant to a more exposed situation, still giving it a little shade, and allowing it to remain there until the first indication of frost, then at once place it in winter quarters. It is by no means a tender plant, and can be stowed away in a cold greenhouse where the thermometer is just about 32°, or it can in lieu of room there, be placed in a cellar or outhouse with Hydranges, Pomegranates, Fuchsias, &c., where, of course, frost must be kept out, taking care that it is not allowed to shrivel for want of an occasional watering. In the spring it may be turned out of its pot and examined. Any decayed roots can be cut away. The drainage must be removed, also the soil from the top down to the roots, then repot in the compost specified. It will not harm the bulb to remove

some of the fibres, and train any strangling roots a little. It may be placed in a greenhouse or warm pit, till it throws up its flower spikes, then it can be removed to its summer quarters until it has once more done its duty. The offsets which are taken off from time to time, should be potted in as small pots as they can be placed—one in each—and grown on in the same compost and manner as the parent plant, until they are large enough for blooming. In this manner one plant may, in a short time, produce as good stock. In taking off the offsets, they will sometimes get damaged at the base; these and very weakly ones will be the better for a little bottom heat, if by any means available. This is certainly one of the most valuable and easily cultivated plants for an amateur.

RAPID POTTING.

BY MR. H. E. CHITTY, SUPERINTENDENT OF BELLEVUE NURSERIES, PATERSON, N. J.

When I read Mr. Henderson's article upon this subject last fall in the *American Agriculturist*, in which he made a statement that one of his men had accomplished the feat of potting seven thousand rooted cuttings in ten hours, it occurred to me that if it had been intended as an instructive article, it would have contained something more than the bare fact,—the mode of handling, the number of assistants, and general *modus operandi* would have been given; but as these little requisites were withheld, I concluded that it was only a little harmless bluster which certain peculiar temperaments must occasionally indulge in, in order to keep them in tone. But when I saw the same article repeated in the July *Gardener's Monthly*, with about thirty per cent. interest added to the feat, and still without any explanation as to how it was done, number of assistants, &c., being given, I rather inclined to the opinion that Mr. Henderson was not so desirous of enlightening the public in rapid potting, as he was to impress upon the public that he had an Irishman in his employ, and some plants, and a good many plants.

As the publication of those articles of Mr. Henderson made them matters for public discussion, I had the audacity to make a few comments upon the subject of rapid potting, which were published in the September *Monthly*. Not having the data wherewith to calculate the economy of sticking ten thousand rooted cuttings into pots in ten hours or less, I was obliged to confine myself to figures of my own, and such facts as my figures dictated, which facts and figures have not yet been controverted.

And here, I may as well say, that unless we know the number of men and boys Mr. Henderson's Irishman had to assist him, it is impossible to get even an idea of the value of his day's work. If a man or boy stood beside him and filled the pots with earth, and he made a hole with his finger and stuck the rooted cutting in, it might perhaps be done, as we have plenty of boys around here who could stick their finger ten thousand times a day into soft earth. That ten thousand rooted verbena cuttings, (or anything else for that matter) can be stuck into pots in a day of ten hours, I never disputed; but that any man or boy can pot a rooted cutting every four seconds, and continue the same for ten hours, doing his work well, "in a workmanlike manner," I deny, and am willing to submit the truth of my proposition to both European and American nurserymen and gardeners of experience.

Mr. Henderson, in his article in the July *Gardener's Monthly*, appears to intimate that the statement made in the *American Agriculturist* a few months previous, created considerable comment, and some doubt, and in Mr. Henderson's last he says that the wonderful work of his young Irishman had roused the "ire of numbers of gardeners." Now in regard to "comments," "ire," &c., I may say that I am a steady reader of all the leading journals that would be likely to contain such comments, and the first and only comments I have yet seen were those of my own, published in the Sept. *Gardener's Monthly;* and permit me to say to Mr. Henderson, that I do not envy him the possession of his wonderful young Irishman, neither am I anxious for my assistants to emulate his prowess, for his style of work would not suit our line of trade. I am quite willing that our plants should speak for themselves, and heartily congratulate Mr. Henderson that so many of the ten thousand verbenas stuck into pots on a certain day by his men, were actually alive one month afterwards.

The compliment conferred upon the great American statesman, and the Rev. Henry Ward Beecher, by Mr. Henderson mentioning their names in connection with his wonderful young Irishman, is simply stupendous. Methinks I see the great dead arise, and shaking off the habiliments of the tomb, present himself at No. 35 Cortlandt Street with a new hat, and on

bended knee, make profound acknowledgment, supplementing the same with a good order. And the reverend gentleman of Plymouth Church will not be slow to appreciate the honor.

As is well known to a great many in the United States, my early years were spent in one of the largest plant establishments the world has yet seen, where Heaths, Epacris, and other other hard wooded plants were produced in endless numbers. This was the work of the propagator. The production of verbenas and other soft stuff, was entrusted to the apprentices, under proper supervision, and the veriest ninny among the boys was supposed to know when to pot off verbenas; and we were always instructed that the first and most important thing to learn was to do our work well; so that if I am deficient in skill in my profession, as Mr. Henderson seems to intimate, it must be owing to the wrong teachings then imbibed, and the trashy horticultural literature to which I had access; for be it remembered, the profound (?) conceptions which culminated a few years later in the production of the elaborate "practical Floriculture," were not then available. I have been a constant reader of the horticultural journals of England and America for over thirty years, but until recently I have not known a single instance of a nurseryman using a horticultural journal as a medium for extolling the exploits of his laboring helps.

Mr. Editor, I regret that my comments upon rapid potting in your September number should be taken by Mr. Henderson as a manifestation of ire towards his young Irishman, whose American training I have no doubt has improved his ability; and I think American training may be as good as any other training, provided the person trained has an experienced trainer.

ON NUMERICAL ORDER IN THE BRANCHING OF SOME CONIFERÆ.

BY THOMAS MEEHAN.

[*Read at the meeting of Academy Natural Sciences, of Philadelphia, June 28, 1872.*]

In a paper entitled "Adnation in Coniferæ," read at the Chicago meeting of the American Association for the Advancement of Science, and which was published in the "Proceedings" for 1868, I pointed out that the true leaves of Coniferæ were mostly adherent to the stem—not merely "decurrent" as is usually said of some of them; and that the vigor of the axis or stem was the measure of the adhesion. I now propose to show that axial vigor also determines the law of branching in some cases, and that the branching is on a numerical plan.

In the most vigorous growths of *Thuja occidentalis*, the common American arborvitæ, the leaves are almost wholly united with the axis, only the delicate sharp awns are free. These are arranged in pairs, one leaf opposite the other. The upper pair alternates with the lower (decussate). A branch appears at the eighth node; and always at the eighth node when the vigor of the branch remains the same. As the axis weakens the branches appear at the sixth node. This is the general average. With greater weakness the fourth node gives birth to the branch; and finally as the plant takes on its frondose flattened form, a branch pushes from every alternate node. But in no case does a branch push at an odd number. They are always from the second, fourth, sixth, or eighth node.

In *Thuja gigantea*, Nutt., the same law prevails, the sixth and eighth being more numerous.

In *Libocedrus decurrens* all appear to be on the alternate plan. I have seen no instance, even in vigorous shoots, where the branches push otherwise than from every second node. This is also true of *Chamæcyparis Lawsoniana*, Parl.; and of *B. obtusa*, Sieb., *C. pisifera*, and *C. retusa*—all probably varieties of one thing.

In *Biota orientalis*, the branching is mostly from the fourth node, occasionally from the second or sixth; rarely one will come from the third and odd number. In the curious variety *B. O pendula*, Parl., where the plant has lost or never achieved the power to produce frondose branches, the numerical order is lost: branchlets push at any indefinite point along the stem.

Chamæcyparis sphæroidea, Spach., the American white cedar, the branching is pretty regular at the fourth node, sometimes from the second, rarely from the fifth.

Chamæcyparis Nutkænsis, Spach., the yellow cedar of the Pacific Coast, the course is the same as in the American arborvitæ.

Sometimes in very stout shoots of this plant the leaves will be in whorls of three. It is curious to note then that the branching is on the odd number; either at three, five, or so on; but yet not in a regular graded series as in its normal condition and in the arborvitæs. I have counted as many as fifteen nodes without a branch, and this absence of order in branching also exists in

Junipers. In these the leaves are mostly in threes, though still decussate, and the branching takes place at the odd numbers, and is irregular.

Callitris quadrivalvis has four leaves in a whorl, and here again we have the irregular branching of the junipers.

The result of these observations is that in a large number of cases the frequency of branching is in company with declining vigor; that presence of leaves in an opposite pair is favorable to a regularity of branching on even numbers; and that whorls of three or more are associated with irregular branching on odd numbers.

It is proper to remark that this branching has reference to the growth of one season. There are axillary dormant buds at every node, which may push according to circumstances during any subsequent year.

In connection with this subject are some observations worty of note, though not probably original. As soon as the branching at alternate nodes begins in *Libocedrus*, *Thuja*, *Biota*, and others, the frondose character commences. The pair of adnate leaves just above the node which bears a branch, is much contracted. These are always on the upper and lower faces, and are known as the dorsal leaves. The next pair of leaves are more developed, more free from cohesion with the axis, and from one of them a branchlet usually springs. These are the marginal leaves. Usually the branchlet, one from a node and from every second node, are alternate with the ones above and below it; but when the branchlet pushes from the main branch, the first series of two or sometimes three are one above another, and on the upper side. The flattened frondose form is the result of this plan of development. Rarely two branchlets will proceed from each node, one from the axil of each opposite leaf.

In some species each succeeding pair of cohering leaves are of equal length and strength. In the *Thuja* and in *Chamæcyparis Lawsoniana* this is characteristic; but in *Libocedrus decurrens*, and *Chamæcyparis obtusa*, and allies, every first pair succeeding a branchlet, and which on the flattened conditions constitute the dorsal pair, are very much abbreviated and shortened, so much indeed as to scarcely proceed beyond the line of the lower pair, and thus some writers have been led to describe these plants as having 4 verticillate leaves.

The seedling or first year's growt of *Biota orientalis* exhibits this subverticillate character. The first pair of leaves succeeding the cotyledons is so near as to appear almost two of a series of four cotyledon lobes. For many successive nodes the leaves appear to be 4 verticillate.

In regard to the early leaves of coniferous plants, those which follow the cotyledons are nearly free, having little cohesion with the stem or "decurrence," as botanists say. As the axis becomes thicker, or, as I have termed it in the paper referred to, endowed with more vitality, there is less of the free portion and more of the adnated or cohering, until in *Pinus* there is nothing left but a thickened bed or *pulvinus*; and the axial bud which generally marks the diverging place of the proper leaf has to push and in a difficult way perform the function of leaves. If anything tend to check the vitality of the tree, so that the axial buds do not develop, the adnating power is weakened and the true leaves again become free from the stem. This is seen in *Pinus edulis*, Engl. At any time through its existence, where the branches are weak by being shaded or starved by other branches, the *pulvini* develop in true leaves, and the axial bud, usually producing two "needles," does not push. Street trees and osier willows when annually trimmed, though the subsequent growth is vigorous, increase their trunks slowly in girth, and die much earlier than uncut ones. Thus their vitality is impaired. Some pine trees when cut down push up strong sprouts, and these will often have the pulvini developed into true leaves as in the weakened *Pinus edulis*. I have shown already, in the paper before referred to, that *Thujopsis borealis* (*Chamæcyparis Nutkœnsis*, Spach.) also throws out free leaves always in the weakened cutting state. In some garden varieties of *Thuja* and *Biota* the weak axis of the seedling condition remains throughout many succeeding years of growth. In all these cases the leaves are free. These free leaved forms are still regarded by some excellent European botanists as species of unknown introduction, although, as stated in my paper on "Adnation in Conifera," their derivation from *Thuja and Biota* is founded on direct evidence. I refer to this incidental matter chiefly to add the new observation, in connection with the leading points of the present paper, that with their weakened condition, the regular numerical order of branching, as noted in the fully developed forms, does not exist.

I do not suppose this law of vital vigor so far

as developed will account for all the phenomena of free or adnated leaves; or for all the numerical relations of branchlets to the nodes. I have myself pointed out some apparent exceptions, but I trust I have made it clear that it performs no mean part in the order of these things.

STOCKS FOR WORKING FRUITS.

BY F. K. PHŒNIX, BLOOMINGTON, ILLINOIS.

It is curious to note the effects of cross-working varieties on allied but widely differing stocks. For instance—some 8 years since I worked the Anger's Quince on the Juneberry (Shad or Service) about 4 feet from the ground. The Quince grew well and soon commenced bearing, and has born nearly every year since. But being in an apple orchard the apple trees have prevented any fair developement or test. The cross-working has seemed to make the quince more hardy than any other method I have tried. The pear also takes moderately well on that stock and I think should be worked and tested on that stock for the North. I think the Juneberry is among the very hardiest Northern trees or shrubs.

On the Eur. Mountain Ash stock at 4 or 5 feet from the ground we had perhaps 50 worked Hawthorns that made fine heads with shoots of three feet or more. We thougth what a splendid stock to work Hawthorns on—as there were almost no failures. But the Hawthorn tops all died off last winter although other Hawthorns did not—nor did the Mountain Ash bottoms. Possibly the Hawthorns may have grown too late. I think the Mountain Ash root is being considerably used in the North West for grafting the pear on. A few sorts only do well on it.

I wish all hands would go to work to get up more choice, hardy seedling fruits for the North West.

ATMOSPHERIC INFLUENCE UPON VEGETATION.

BY WALTER ELDER, PHILA.

That class of "Zonale Geraniums" whose peculiar attraction lies in the beautiful variegations of their leaves, consisting of *zones*, or *rings* of various hues, and are so very conspicuously ornamental in the glass-houses, and the other class called "golden," whose leaves are of various hues of yellow and greenish-yellow, and are exceedingly beautiful in glass-house culture, are both impatient of bright sunshine and dryness, which makes them unsuitable for general bedding out on open grounds, upon high lands and inland situations; they wither up if bedded out in sunny exposure. In the cities of New York, Brooklyn and Jersey City, those Geraniums are bedded out largely in sunny exposures, and flourish admirably. I saw them last August, all in full luxuriance,—not a plant had a withered or sun-scorched leaf. I at once perceived that the humid atmosphere from the surrounding waters was the cause of the prosperous growth of the plants.

Celery, which has to be grown in furrows and trenches, on high lands, and in inland situations, is transplanted upon the level ground in rows, from thirty inches to three feet apart, around New York and Jersey City, and it flourishes admirably. All along the wayside, from the old town of Jersey City to Bergen district, the large fields were covered with celery so planted. And in August, the crops were as green and flourishing, as ours around Philadelphia are in October and November. But there, the salt marshes spread up to near the fields, and the vapors arising from the marshes during sunny days, fall down upon the celery crops during the night, and so refresh them, to promote their thrifty growth. Could any system of irrigation be more perfect?

WHAT I KNOW OF POINSETTA.

BY R. BUIST, ROSEDALE, PHILA.

On landing in Philadelphia in 1828, I paid a visit to the then famous "Bartram Botanic Garden," and there saw, just arrived from Mexico in two boxes, a few stumps of remarkable looking plants, sent by the late Hon. I. R. Poinsett of South Carolina, then Minister Plenipotentiary at the Court of Mexico. They were described as something of the most brilliant character.

After I became located, I made a small investment in a few plants, propagated and flowered to the best of my ability, and sent a plant to Mr. McNab, my valued friend of the Royal Botanic Gardens of Edinburg, and other establishments, under the name of *Euphorbia Poinsetta*, with a description of its grand crimson bractea, which had been grown under my culture to twenty-two inches in diameter.

At a breakfast party with the late Sir Wm. Hooker, in Glasgow, the subject of the extraordinary plant came up. The very amiable lady of the professor chided me for practicing such extravagant Jonathanisms upon them. Prof. Graham figured it in the *Botanical Magazine*, Plate 3493, established a new genus, and honored Mr. Poinsett, viz: *Poinsetta Pulcherrima*, (Gra.); Euphorbia Poinsetta, (Buist's M. S. S.) Thus you have its introduction, and its subsequent culture by the tens of thousands in this country and Europe for bouquet makers, winter decoration, &c. When under good culture it stands unrivalled. What will now be said of a *double Poinsetta?*

On a tour a short time ago through the grounds of Mr. Isaac Buchanan, the millionnaire florist of New York, he drew me towards two plants of familiar outline; but on inspection I discovered a plant entirely new to me. Is this a double Euphorbia? It is, was the reply, for which I paid *one thousand dollars in cash.*

The saddle-like foliage has a more graceful outline than the present Poinsetta, the nerves of deeper purple, the petiole (footstalk), has two erect horns of about one-forth inch in height, surrounded by two glands (a unique character).

The dried specimen of flower before me, shows a bunch of towering crescent-like bracts about ten inches in height, and apparently has been as wide, forming a dense crimson cone upon the top of each shoot. When this plant gets under the hands of expert cultivators, it will, I presume, form a pyramid twenty inches high, and as much in width, surpassing every plant now known for *table* ornament and general bouquet making; and I have not the least doubt, but in the hands of a botanical professor, it will be made a new species, eclipsing every thing that we have at the present time.

EDITORIAL.

TRAVELING RECOLLECTIONS.

Long before the child knows the use of money, it has an eye for beauty; and when it becomes a man, he toils for wealth, and honor, and fame, —not for mere renown, but that he may cast all at beauty's feet, or sacrifice the whole to beauty in some of her various forms. The higher his culture, the deeper lies this beauty worship. Now he prostrates himself before some ideal of personal attraction, fascinated by beauties of mind or person, and all he has is hers; and again it may be fine horses, fine pictures, sweet music, lovely houses or grounds.

There are men whom beauty will not move, but they are scarcely men. They toil on, and work. It is all the same to them whether it is sunshine or shade. They heed not the singing bird, nor care whether the flower blows. Furies may shout, storms may rage, desolation may reign supreme; still there are some to whom all this is paradise, if only the percentage be large enough, and the bank account daily swells. Few who are men, as God made man, envy lives like these,—least of all do horticulturists envy them, for we feel that the beauty, which for years many toil, or even spend most of their lives to earn, is ours daily as we go along. In most communities the warrior's position has been held a noble one; but he fights only that his country may have peace from supposed foreign foes, and all the inhabitants may enjoy the loveliness which peace brings. The statesman labors to the end that the greatest good may come to the greatest number; and with the greatest good the love of beauty flows. The man of science labors—oftentimes for mere abstract truth; but he loves to reflect that there is utility at the back of all, and that every added fact of science is to make all the world more lovely and beautiful in other hands, if not directly by his own. No one ever tires of beauty. When one has once caught the inspiration, it is astonishing how it abounds. In sky, on earth, in sunshine and under cloud, there is beauty everywhere. For ourselves we are never lost for an object to admire. If we were doomed to spend our lives within the boundaries of a ten acre lot, so long as it had birds and flowers—the green sod below and the every varying heavens above, we could be content.

For all this, when one fine day in July,

our good brother Williams of the *Horticulturist*, asked the editor to make one of a party to examine the beauties of the far South and West, he gave his consent; and heartily sacrificing to the impious imps of the printing office, in order to bribe them to quietness for a couple of months, he found himself on the 15th of July allowed five seconds to bid adieu to wife and T. M., junior, and board the Pennsylvania Railroad train, which went dashing from New York through Philadelphia at the rate of forty miles an hour. The "India" was a beautiful coach to travel in, but it was some time before this could be fully appreciated, seeing that there were some thirty ladies and gentlemen who were to be future companions and friends, to exchange greetings with. Some it had already been our good fortune to travel with. There was our good Father Clift, whose welcoming shout of "here comes our glorious old heretic," was heard before the car door closed on the bellowing roar of the engine outside. There was "daily rural life" of the *Rural New Yorker*, who, notwithstanding his octogenarian tendencies, looked as happy as a new pin at the prospect of an eight thousand mile ride at his time of life; or perhaps at the thought of having his young looking wife at his side for so many weeks; for be it known to the outside world, an editor who faithfully serves the public when he is at home, has to stick to his den worse than the sorriest bachelor, and the luxury of a wife is generally in the name of the thing. Then there was Fuller and his wife, sent by the *Rural New Yorker* chiefly to look after the old folks, (how he shamefully neglected which duty the *Rural New Yorker* ought to know.) In rapid succession we were introduced to "Rural" of the Chicago *Tribune* and other gentlemen; Mrs. Sam. Jones, and other ladies of literary fame; and by the time we had got through with their friendly exchanges, found ourselves well on towards the Susquehanna River, and soon were crossing the bridge of over a mile in length, recently built by the Pennsylvania Railroad in the place of the one destroyed during the war, when the Southern army made its appearance at thewestern end.

There is nothing so varied in the world as river scenery. We travel over thousands of miles of land, and the details seem very much alike. Here it is flat, there undulating, and now perhaps mountains. We know pretty much before we come to a land scene, what the general features are to be. We look for novelty in the details, and anticipate the pleasure which this minor variety gives. It is not so with river views. No two are alike—each has characters exclusively its own. For all this a first view of the Susquehanna always excites the admiration of the most experienced traveler. Only that beauty must have been a leading element of creation, such a boundless waste of water never would have had an existence. A mile wide here a hundred miles from its mouth, and extending back for, perhaps, three hundred miles into the country, yet abounding with rocks and ledges, and entirely unnavigable through its whole course. Beautifully wooded islands abound and have furnished materials to many a romance writer; and the hills on either side clothed with a luxurious forest vegetation, leaves nothing for the imagination to wish for.

Our party, however, was not all sentiment. Observing one wrapped in deep meditation at a window as the car went over the bridge, we joined him in order to share with him the deep poetic feeling we knew was swelling in his breast; but was somewhat taken aback, when pointing to a mass of green bushes on the water's edge, he exclaimed, "I do wish I had some of those papaws to eat, they are quite as good to my taste as the best West Indian bananas." We wished he had, and went away.

We leave the river at once on crossing, and run southwest towards York, one of the most thriving towns in Pennsylvania, and well known to our readers as the locale of the extensive nurseries of E. J. Evans & Co. The whole of this ride is one of great beauty. The land in this part of the country is so rich, that it produces timber of magnificent proportions, while the hill-sides are so steep and rocky, that it will never be used for anything else but timber purposes; so that if forests are the greatest conservators of climate, the great keystone of the Union will always be as she is now, one of the healthiest and best blocks in the national arch. At York our engine, which was new and had worked so poorly as to put us an hour behind time, was changed; and we sped on at an enormous rate, hardly noting when we passed Hanover Junction the jumping off place for Gettysburg, but a short distance away. From Hanover junction we go south again, striking the Gunpowder River, and at the rate of sixty miles an hour, timed by the writer's watch against the mile poles, we soon came within a short distance of the city of Baltimore. The entrance to most cities is through

suburbs, characterized by all sorts of vile odors and miserable scenes. Here we run through a beautiful park, containing lovely lakes which serve the double purpose of feeding waterworks and aiding in a beautiful picture; and indeed this is all we see of Baltimore, for after passing this we enter the "big tunnel," and leave the famous old city overhead. A short cut by way of the Relay House, brings us to Washington, making the time from New York less than nine hours. The number of miles is greater than by any other route, but the tunnel saves an hour usually spent in horsing through Baltimore; and then the excellent manner in which the Pennsylvania Company makes its road-beds, enables fast time to be made with entire safety. The great beauty of the scenery will always make it a favorite line of public travel.

To make connection for our southern trip, we had no more time in Washington than to note the wonderful change which is being made, and which is turning one of the most old fashioned into one of the most beautiful cities in the Union. It is pleasant to note that the capital of the country is being rendered worthy of its name. From here, by the kindness of Baltimore and Ohio railroad, we took cars for Harper's Ferry, where our sleeper was switched off, and we halted for the night, to begin our journey proper the next morning.

SCRAPS AND QUERIES.

CORRECT NAME OF THE MAMMOTH TREE.—"C. is puzzled to know the correct botanical name of the Mammoth Tree. It has various names with different writers. What is its right name?" Most botanists use *Sequoia gigantea;* but as this name was originally intended for a kind of spruce, some think it ought not to be again used for another plant; and these call it *Sequoia Wellingtonia.* But this re-use of a dropped name is not uncommon. We should say *S. gigantea* is the correct name.

ESSAY OF MR. MILTON'S.—The editor not seeing the proof before going to press on this occasion, makes the following corrections necessary: "In last month's number of the *Monthly*, the following mistakes occur in the article on 'Adiantums,' owing most probably to my indistinct manner of writing: North Easton, Pa., should be North Easton, Mass.; A. fulaum, *A. fulvum*, and A. trapeziforme variety Lanctæ Catherinæ, A. trapeziforme variety *Sanctæ* Catherinæ.

Very truly yours,

M. MILTON."

DOUBLE CALLA ÆTHIOPICA.—Mrs. Mary Bissett sends us a Calla with two flowers, one within the other, from the same flower stem. This happens only once in a while in the Calla, and always interests students of morphology when seen.

Since Mr. James Bissett's decease, some three years ago, Mrs. B. has kept the business going very successfully. In tastefully arranged cut flowers and ferns, the greenhouses have a good reputation.

A BEAUTIFUL LETTER.—The Pennsylvania Horticultural Society, not forgetting that its mission is to cultivate a taste for horticulture in the community, frequently admits schools free to its exhibition. The following pretty letter of thanks comes from children to the President, who will tell their own story:

"INSTITUTE FOR DEAF AND MUTES,
Philadelphia, September 18, 1873.

"WILLIAM L. SCHAFFER, ESQ.,

"Dear Sir:—We, the pupils of this Institution, having enjoyed a pleasant visit to the exhibition now open at your hall, greatly desire to express our gratitude for your kindness in inviting us to do so. The visit not only afforded us a source of pleasure, but assisted in the cultivation of our minds, and enables us to feel that our knowledge of the vegetable kingdom has been very much extended, for which we are truly grateful. The delicious fruits of different sizes and varieties spoke loudly of the fertility of the States from which they were brought; and the flowers, so lovely and fragrant and neatly wrought into garlands and wreaths, made everything around look beautiful, and gave to the air the sweetest odors. The Hamburg grapes struck our curiosi-

ty more than any other kind; they were the largest we ever saw.

"Besides the interest we took in examining the fruits and flowers, we do not forget the plants, of which there were so many kinds that it was impossible for us to remember the names of all. Our principal and teachers kindly made us acquainted with several large ones, which delighted us very much. We have often seen ferns in the country, but none to equal those which we saw at your exhibition, either in size or beauty.

"Besides the fruits, plants, flowers, and all we saw, we did not forget to take a good survey of the building; and while doing so, observed that much improvement had been made during the last year. The walls and ceiling presented a very fine appearance, and the gallery above afforded a good place for observing all that was going on below.

"Now that we are so well pleased with our visit this time, we sincerely hope that if we ever enjoy such a pleasure again, we may not be less gratified, and be assured that we will never forget the debt of gratitude we owe to you, our kind benefactor.

Gratefully yours,

GERTRUDE B. SMITH, LIZZIE BARSTOW,
BRIDGET HUGHES, LUELLA H. LITTLE,
CARRIE M. CREASE, MARIA L. HESS,

In behalf of the pupils."

CHILOPSIS LINEARIS.—A Dallas, Texas, correspondent says: "I have Chilopsis linearis (Don.) growing. It blooms in midsummer, grows 6 to 12 feet high, and is called Willow Leaved Catalpa, from shape and color of flowers. Blossomed this season from cuttings. Its only objection is, that like the Buddleya, it becomes disfigured by old flower stems. Otherwise very ornamental."

FRUIT IN NORTHWESTERN PENNSYLVANIA —A correspondent from Mercer County says: "We have four acres in vineyards, and some of the finest grapes this season that ever I have seen. Been very busy for the last three weeks, and will be for two weeks yet in picking and shipping away grapes. We had a fair crop of apples and pears. Would have liked to sent you a lot of our apples for the Horticultural Fair, Philadelphia, but had not time to get them ready."

PEACHES IN MICHIGAN.—D. D. Waters, Esq., gave an interesting discourse on peach culture at Grand Rapids in December last before the Michigan Pomological Society. They seem to bear there as abundantly and with about the same regularity as in the Middle States. He speaks of the vicinity of Spring Lake. Here Early York mildews, Morris White is of inferior size, and Smock is too late. His choice are Hale's Early, which does not rot here, Crawford, Barnard, Old Mixon Free, Late Crawford, and Hill's Chili, also called Stareley's Late. In culture he advocates a thoroughly clear surface. The peach should be richly fed. An abandoned hog-pen makes one of the best peach soils. Manuring the fruit is an important operation. Overbearing and starvation are the chief sources of disease in the peach.

The prices of peaches there was from $1.00 to $1.75 per basket.

EARLY BEATRICE PEACH.—*Mr. Myers, Bridgeport, Delaware*, gives us the following account: "In a former number of the *Monthly* you ask for information about the Early Beatrice Peach.

"Having understood that it was in fruiting in Halifax County, North Carolina, I visited that county last June. I found a Mr. Bellis shipping the fruit June 25th. The fruit was small to medium size, well colored, and free from rot. Even the fruit stung by Curculio did not show rot.

"In passing over the orchard several times, I saw but four as fine peaches of either Early Beatrice or Early Louise, *rotting*. Five or more thousand of different ages, from two to three years,—a few I think older—all had fruit on. Had born a crop the year previous. Had not had very good attention last year. The former owner having failed, Mr. Bellis will put them in good order. This orchard was planted by Mr. S. Bilyou. Mr. Bilyou has done the country great good in being the first to make known these valuable peaches.

"Mr. Bellis was shipping the Beatrice, at the time I was there, to New York. I wrote to Fuller & Pullen, 146 West Washington Market, to go and see in what condition the fruit arrived, directing by mark on crates sent by Mr. B. Messrs. F. & P. wrote me the fruit arrived in fine order, and selling at $4.50 to $5.00 per box. Boxes not over ¾ in. scant; that should suffice. A few days later, received another letter from

F. & P., saying fruit came in good order. One crate, larger fruit than others, brought $8.00. A few days since I received a letter from Mr. Bellis, saying his Beatrice paid him $1.00 net a crate better than any other kind. And he says he picked the last Beatrice twenty days after he commenced; and the fruit then was in good order. I consider it the most valuable peach in the world, he says.

"I brought with me a small basket of the fruit, through the kindness of Mr. B. I kept a few of them up to the morning of the ninth day, when children got to the basket and ate them. Were in good condition on that morning. I placed a few in the show-case of D. F. Ball & Son's store, one of them keeping fourteen days. Hale's Early, picked at the same time, rotted in a day or two. Hale's was rotting on trees side by side of Beatrice, and at least twelve to twenty days in ripening. Early Louise is larger than Beatrice. I should consider them enormous bearers. Never saw young trees so loaded. The fruit is a beautiful light straw-color—pink cheek next sun. I think the Louise of very high quality, and from what I saw, consider it the second best *very early* peach known: in fact I am not sure but it may be placed ahead of *all* others. Ripening as it does, but a few days later than Beatrice, and appeared entirely free from rot. Part of the fruit I kept nine days was of that variety. In conclusion, I would say I think the world is greatly indebted to Mr. T. Rivers, of England, for introducing some of the most valuable *very early* peaches ever known."

PERSIMONS.—Some one without explanation sends us a box of excellent persimons. We ate them, and wished for more. They were first class persimons, and in striking contrast with those which, in conjunction with onions, some hypocritical people use at funerals, according to some "reliable gentlemen," though not of the "old school."

LATE PEACHES.—Mr. L. Blodgett sends a box of fine specimens. The yellow freestone referred to was especially fine in size and flavor.

"I am not fortunate in showing fruit, but I have never failed to produce for my family and my friends, an abundant supply of such peaches as I send you to-day, for the entire season from August 15th to the last days of October.

"These are four of No. 3, which I regard as the first peach for its season, (Oct. 1st to 20th) I ever saw. I have four trees of this variety, bearing in 1871 and 1872 about twenty-five bushels each year, and this year about three bushels. The White Melting peaches and Yellow October Clings, were more abundant this year. Enclose four peaches of the Yellow October Cling, No. 11, of my list of seedlings."

TOUCHING NAMES OF CHERRIES AND OTHER FRUITS.—*Mr. F. R. Elliott* writes: Thank you! Here you are, my good energetic public friend of all connected with rural life—even to the skimming and thinning down of superfluity of nomenclature. I read your calm and judicious notes touching the name of "*Caroon*" for a special name or designation for a distinct variety, but confess I fail to see your substantiation. Can you make the Caroon from any reliable record other than the old Merry or Mazzard, giving to it as you must or should, the position of growth, soil, location, etc.; and have you not, when completed, the type parent of the Black Heart of the book list description? I have no desire to touch the matter, for I am done with pomology. What I know I know; but it dont pay to keep up a hullabaloo with men who have each an axe to grind, when you are only working for the public good and correction of names, by which fruit growers shall know truly the varieties most profitable to you.

Here in your "foot notes," friend editor of *Gardener's Monthly*, you have a man giving record of the Napoleon as Caroon, and you seem to accord with him"

[Mr. Elliott seems to have overlooked the main point of the note in the last *Monthly*, which was to show that the Mazzard was not the *Merry* of the English gardens. The Merry is one distinct variety, cultivated and propagated as any other variety, while the "Mazzard" comprizes all sorts of hardy wildlings. The true Caroon may be the same as the English Merry; but our New Jersey correspondent, and we thank him for the information, showed pretty clearly, we think, good reason for supposing that what is called Caroon by eastern Pennsylvania and New Jersey, is the Napoleon Biggareau.

CULTURE OF FRUIT TREES.—*C. J. R., Richford, Tioga County, New York*, writes: "I have been for thirty years a close student of horticulture; and besides being a cultivator of fruits myself, have watched the general course of

other fruit growers, and the result is to make it seem truly strange, that any 'level headed' fruit grower should advocate plowing each year among fruit trees? It seems to me that in spite of the observation that they do best in grass, the most cursory examination of the roots would show that the small feeders are all very close to the surface, where the most nourishment is."

TIMBER TREES FOR KANSAS.—A correspondent makes the following inquiries: May I trouble you to inquire about the value of some trees that I am wanting to try? 1st. Can you tell me anything of the value of the Southern Yellow Pine (*Pinus Mitis*) for planting as a forest tree in this latitude? and can it be started easier than the Northern Pines? I want to plant some of the seed, and perhaps some young plants next spring, but I shall go light about it unless I can feel pretty sure that it will be a valuable tree here.

2d. What do you think of the Deciduous Cypress for this latitude, where we have water at 4 to 10 feet below the surface?

3d. Can you tell me anything about the value of the Blue Ash as a forest tree? The White Ash does not please me here. The tree is small and the timber poor, and the "green ash," which is native here, is not much better.

[(1). One "Southern Yellow Pine" is *Pinus palustris* sometimes also called the long leaved Yellow Pine, and is the timber from which floorboard is made. This would not do well in Kansas. *Pinus mitis*, another yellow pine, would be hardy in Kansas, but whether or not it would do well as a timber tree is a matter for experiment. Is there any trees of it of any size in the State? We should be glad to know what is the largest. The timber is excellent if it will do well. The plants are not raised as easily from seed as northern species.

(2). The Deciduous Cypress ought to do well in the situation described. Perhaps even better than in the South. Though naturally found in "swamps," it does not like the locality, and prefers dryer ground in spite of the orders of nature.

(3). The Blue Ash will, without much doubt, do better than the White Ash in Kansas We have seen them together in the woods of Ohio and Indiana, always to the advantage of the Blue Ash. It must be remarked, however, that the White Ash *Fraxinus Americana* is more variable than any other American tree except, perhaps, Celtis occidentalis. The variations used to puzzle the botanists of the past age, and thus we had F. lutea, F. epiptera, and F. acuminata, which are now admitted as the same; and F. pubescens, which, though regarded by Gray and others as a good species, is not, we think, more than a form, and not a very decided orm of F. Americana. It is when the forms approach F. pubescens that the White Ash is a worthless timber tree. The forms "at the other end" are just the reverse.]

CLIMATE OF CHESTERTOWN, MARYLAND.—Massey & Hudson say: "Frost holds off well here, and we are getting an abundance of stock for bedding plants from the open ground yet (October 14).

Our locality is peculiarly exempt from early frost in autumn. Three years ago geraniums lived and bloomed in our garden until December 15th. This Peninsula is too little known North. Would be glad to see some editors and publishers here."

PATRONS OF HUSBANDRY.—MR. SAUNDERS —CORRECTION.—In October number, page 299, line 15, I am made to say "Hon. W. Saunders *has*, etc, whereas my copy read 'had.' The drift of this article pre-supposes that I did not mean to use *has*, inasmuch as I am speaking of what occurred in the past. A mere cursory reading of that part might make *me* seem to desire to do an injustice to Mr Saunders, for which purpose I would have no right, nor would the editor allow me so to use the columns of the *Monthly*. By allowing me the correction, oblige,

G. W. THOMPSON.

[On looking over Mr. Thompson's article, we note that it might possibly be construed into the meaning, that Mr. Thompson imputed to Mr. Saunders the motives referred to. This was not his intention, nor did we understand it. Mr. Thompson was referring to this malicious rumor—combatting, not endorsing it,—and our remarks were intended as aiding Mr. Thompson in his effort. We supposed every body understood this; but as we see there is a possibility of the misconstruction, in justice to all we are thus explicit.

Since the above was written we have a note from Mr. Saunders, with his thanks for the unsought testimony we gave in his behalf. Mr. S. reminds us that before the order of Patrons of Husbandry was talked of, he had the offer of a

nomination to the office of Commissioner of Agriculture, and that he positively and absolutely declined, as he has always done. Few persons have had a more intimate acquaintance with Mr. Saunders than the writer of this; and no one can more fully feel the injustice of the suggestion that he ever had any aspirations to the office, much less used his position to further the end.

HORTICULTURE AT SALT LAKE.—In reference to the note in the *Gardener's Monthly* last month that the bronze medal of the Pomological Society was awarded to the Utah collection, a correspondent writes: "We were a little surprised at not so much as receiving a letter of acknowledgment of the receipt of the fruits we sent to Boston. And all the information we have received as yet, has been through the *Monthly*.

"Mr. J. S. Houghton has been kind enough to forward to me extracts of proceedings of your Fair in Philadelphia. Our Fair closed on the 9th inst. My time has been taken up entirely with the business of the Fair for the last two weeks. Exhibition of fruits was not as large as I expected it would be. But horses and horned stock were better than ever before. Financially it was a success. We had a severe frost two weeks ago to-day, (Oct. 11th) which spoiled our Dahlias. Cold winds visit us, and warn us that winter is near."

SMILAX HISPIDA.—*Mrs. S. E. N. Corning, South West Iowa.*—We give above the name represented in the following note. It is pleasant to note so much attention drawn to our beautiful native climbers. A near relative to his, growing further south, Smilax Walteri, is one of the most beautiful things possible to grow; but we know no one who has a plant:

"I send you from this comparatively new country, a leaf or two with stem of plant for name. I found it climbing by tendrils to trees, and growing about fifteen feet high. The stem, when fresh, looks much like that of some of the white moss roses. Vines of all kinds seem to luxuriate in this part of the country, though I fear for my favorites, the Fuchsias. Probably the dryness of the atmosphere does not suit them."

PHYLLOXERA—CORRECTION.—Friend Meehan: In your October issue, speaking of some remarks of mine before the Academy of Natural Sciences, you have the following, the italics being mine:

Prof. Leidy inquired of Mr. Riley the true position of the insect in scientific classification; Prof Riley replied that it was not yet well settled. *Its appearance brought it somewhere near the aphids, but it did not have successive broods from one impregnation;* aphids did. In this respect it approaches *coccus*. He thought it between the two families.

I am sure I said no such foolish thing. What I did say was that the insect belonged to the sub-order *Homoptera*, and that while it was at present classed with the plant-lice (*Aphididæ*) it bears close relation to the bark-lice (*Coccidæ.*) *Phylloxera* multiplies agamically like all the *Aphididæ*, and therefore does produce successive broods from one impregnation.

Yours truly,

C. V. RILEY.

BOOKS, CATALOGUES, ETC.

SIXTH ANNUAL REPORT OF THE SECRETARY OF THE CONNECTICUT STATE BOARD OF AGRICULTURE.—From T. S. Gold, Secretary.—It is the misfortune of some societies to publish "reports," which soon find their way to the rag mills, and these facts have had a tendency to lower the public estimation of reports as a general thing. It is a misfortune, as many of them have valuable material, and are well worthy of perusal and preservation. This volume is one of this class, which we are glad to receive.

RANDOLPH PETERS' CATALOGUE, WILMINGTON.—The catalogues of our nursery friends are always very welcome. At one time we gave with pleasure brief notices of them; but they came in such shoals, that we could not spare the room. Then we limited them to a mere notice

of the name of the firm issuing them; but found if we did justice to all, that would take a couple of pages. To pick out a few is a sort of favoritism, the readers of the *Gardener's Monthly* have too nice a sense of fair play to tolerate; so we are driven to the course of noticing only when there are some special matter of public interest to refer to. Mr. Peters' catalogue contains more news about peaches, peach varieties, and peach culture, than any catalogue we have had before us this year.

SIXTH ANNUAL REPORT OF OHIO STATE HORTICULTURAL SOCIETY.—Contains much of interest to fruit growers of Ohio. The Society seems to be in a tolerably flourishing condition.

NEW AND RARE FRUITS.

NEW PEARS.—From Ellwanger & Barry we have a box with the following newer varieties of pears: Marie Louise d' Uceles, St. Therese, Beurre de Ghelin, Bonne de penits d' Ausault, Madam Andre Leroy, Bon Roi Rene, Court queue d' Automne, Henri Desportes, Napoleon III, Bois Napoleon (Bavay), looks like Urbaniste; Beurre Samoyeau, Therese Appert, Duhamel du Morceau, Madam Henri Desport, Sarah (Clapp) Andrew, St. Crispin (Andrew).

It it said there has not been much improvement in pears of late years, and that the old and well-known kinds are good enough for any one. If every one can grow these as E. & B. grows them, there surely must be progress. In size and beauty most of these rival our best known kinds, and most of them equal at least to the average.

THE MILES GRAPE is by no means a "new" grape, yet it is somewhat rare in cultivation. It is now some years since we heard Mr. John Rutter and Mr. Josiah Hoopes speak well of it. This year we have heard it spoken well of in several quarters. It is small, but early and good.

THE CHAMPION GRAPE.—This is a new claimant for popular favor, said to be ten or fifteen days earlier than Hartford Prolific. It is remarkable that whenever any novelty is to be earlier than any other well known kind, it is generally "ten or fifteen days" in the advance. Still, so far as we can learn, the Champion is really a promising kind.

NEW NATIVE GRAPE.—*Claggett & Munger, St. Joseph, Mo.*, sends with a bunch of grapes the following note: "We send you per express samples of grapes for inspection, which the grower believes to be a foreign variety, he having received it from a German friend, who claimed to have brought it with several other varieties from Germany. In growth and other appearances we can see nothing indicating foreign origin. Robust grower like Concord—fully as hardy, the two being the only ones out of twenty or thirty varieties grown here that were not seriously injured or entirely killed during the past two severe winters. Has been fruited here for the last four seasons. Ripens earlier than Hartford; and we think will bear transplantation to any distance. Owing to drought now prevailing here, it with all other kinds are under size, and ripening very poorly. Other years it has been fit for table use from 1st to 5th of August. Should you recognize it as a known variety, we would be under obligations for its proper name."

[It is a native grape of very good quality; but not, we believe, the same as any kind in general cultivation.]

THE ORANGE APPLE.—*Mr. Blodgett* writes: I send you two average specimens of the "Orange Apple," an apple I have grown since 1838; and one that was always a favorite for quality, appearance and productiveness. I very rarely see it here, and only in shipments of fruit from western New York or Erie County, Penna.

It is not known in eastern New York or Pennsylvania, nor can I find it described in Downing's list, and as I do not claim to have any share in originating it, perhaps Mr. Downing will allow me to describe it, so that it may in future be identified.

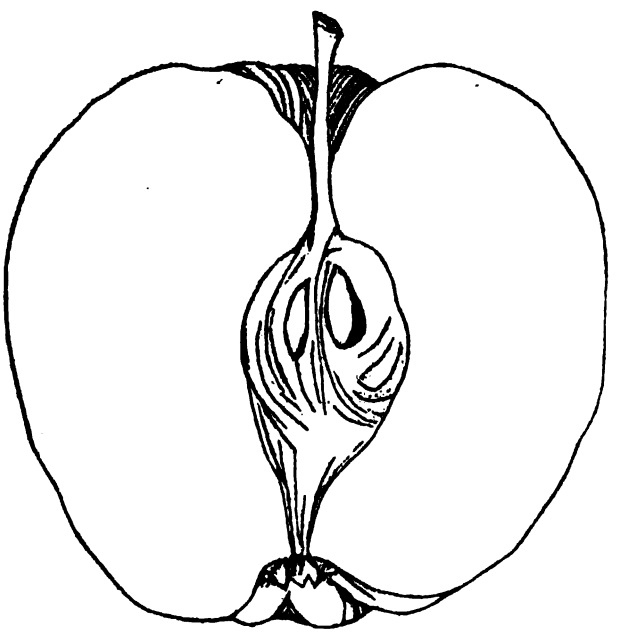
During last year I observed very closely all

fruits grown near New York City, and all that were exhibited at the American Institute and other fairs, and there was nothing to represent either of the three varieties of apples which I have grown and valued for so many years, viz: the Speckled or Westbrook, the "Sour and Sweet," and the "Orange Apple." If these were new and untried fruits of doubtful value, I should not suggest anything in regard to them, but they are next to the R. I. Greening, the best of standard fruits.

I give such description as I think distinguishes and identifies this "Orange Apple."

"Orange Apple," (as grown in Mr. Blodgett's orchard, near Sugar Grove, Pennsylvania, for thirty-five years; also generally in that variety in New York and Pennsylvania.)

Tree erect, symmetrical; close rather than spreading, and without strong leaves; bark smooth, light colored; laterals abundant. very flexible and often pendant. Inflorescence abundant on tenninal points: fruit large to very large, usually on pendant twigs, (never on rigid twigs or stems like the Greening); oblong, somewhat abruptly truncated, and with flattened sides or segments; calyx deeply set, and always closed; stem deeply inserted, and of the length of the cavi'y; skin greenish yellow to bright yellow on the sunny side, becoming greasy on ripening, and particularly after picking; flesh yellowish-white, and often quite yellow on the exposed side; very tender and juicy, sprightly subacid, crisp and excellent as a dessert fruit. Season, September to October, (but may be kept till January in Warren County).



NEW AND RARE PLANTS.

THE YELLOW AQUILEGIA.—*Mr. L. Guerinen, Cambridge, Mass.* writes: "I thought you would like to compare the two species of Columbines; *Aquilegia aurea* of Roezl and the already so much synonimied one, now called at last *Aquilegia flava*. We received the seeds under the name of *Aquilegia cœrulea* and it flowered last year 'yellow,' but 'they' said it was not different from *Aquilegia Cœrulea* except in color; but I find that besides this, it was taller, a later bloomer, and

flowering all through the season; peculiarities which the A. cœrulea has not.

So I exhibited it under the name of *A. cœrula* and I took the liberty to add var. lutea. The Mass. Horticultural Society awarded it its silver medal. It flowered so long in the season, that at the autumnal show I had still a good bunch of flowers. This spring it has been called here *Aquilegia cœrulea flava*, and now it is called *Aquilegia flava*, and in England where Dr. Gray sent the seeds and plants, they call it *Aquilegia leptoceras lutea.*

The *Aquilegia aurea* of Roezl which you will find in the lower part of the box, came from seeds direct from Mr. Roezl, it is now called here *Aquilegia flovescens.*"

[The flower sent is not half the size of the *A. eptocera aurea*, which we referred to as having seen growing near Philadelphia last year, and which agrees exactly with *A. leptocera aurea*, as described in the English journals. The one we referred to is of a deep golden yellow, with spurs near *two inches* long, but the flower itself not more than an inch in diameter The seeds also are different from *A. cœrulea*, with which it has nothing in common.

While collecting last summer in the far west the writer found in one of the deep canons of the Wahsatch range, a yellow Aquilegia, with very short spurs, and the petals of a dirty clay color. There is no doubt there will be many forms of "yellow" Aquilegia get into cultivation, and cultivators will have to use discretion in getting the best.—ED. G. M.]

ELLIOTTIA RACEMOSA.—An addition to our white flowering deciduous shrubs, especially when its blooming season is in mid summer, is worthy of more than a passing notice. Among these is the *Elliottia*, which, although a native shrub, is but very seldom found. Its habitat is restricted to a few spots in Middle and Southern Georgia, and wherever found the patches do not extend beyond one or two acres. There, however, the whole ground is covered with this shrub. Outside of these small spots not a specimen is to be seen. As far as known this plant has been discovered in three places in Middle Georgia only, and one in South Carolina near the city of Augusta. A few days ago a friend took us to one of these localities, and we were well repaid for a warm ride by a glorious sight of about two acres of *Elliottia* in full bloom. The shrubs ranged from six inches to ten feet in height, but few below three feet in bloom, showing that the plant require from three to four years of age before flowers are produced. In appearance the shrub somewhat resembles young sassafras bushes; branches long and slender; bark smooth; leaves alternate, lanceolate, acuminate at each end, glaucous beneath, of a light green color, and deciduous; flowers small, with four oblong linear petals, pure white, produced upon terminal racemes or spikes, which in thrifty plants attain twelve inches in length, but when less vigorous these racemes, although shorter, are produced more profusely, and give a finer appearance to the plant. Many specimens six feet high, and from two to three feet through, were literally covered with blooms. The usual blooming period commences in early June and last until July. The soil where the *Elliottia* is found is sandy pine land, the surrounding woods being composed of long leaf pine, black jack oak (*quercus nigra*), farkleberry (*vaccinium arboreum*), etc. The plant belongs to the natural order of *cyrallicæ*, or heath-like, and although classed as evergreen by Chapman, Darby and others, it, however, does not retain its foliage through the winter. Wherever the soil is suitable, this plant will be a most valuable acquisition to our ornamental gardens, as there are no shrubs now cultivated that are more graceful when in full bloom.—*Farmer and Gardener.*

DOMESTIC INTELLIGENCE.

SMALL FRUITS AT WILLIAM PARRY'S.—The Editor of West Jersey *Press* writes as follows after a visit to Mr. Parry's Nursery:

But extensive as are Mr. Parry's operations as mentioned above, they do not occupy his whole attention. About one hundred acres of his land are devoted to small fruits, the chief of which are strawberries, raspberries and blackberries, and it is this branch of the business which might be termed one of Mr. P.'s special-

ties. The varities of strawberries grown, which are most esteemed, might be mentioned as follows, in the order of their time of ripening:—The New Jersey Scarlet French, Wilson's Albany, Seth Boyden, Charles Downing, Monarch of the West, Dr. Warder, Black Defiance, Col. Cheny, Late Prolific, Kissena and Kentucky. These follow each other in regular succession, and thus extend the strawberry season through a much longer period than if but one variety was grown. The Monarch of the West is the largest and best strawberry in cultivation in this locality. The fruit is of an almost fabulous size, many specimens measuring five inches in circumference. It is of a bright red color, very firm, vigorous and productive, and of delicious flavor. The foot stalks, which are very stout, bear the berry well up from the ground, and a healthy and luxuriant foliage protects it from the hot sun. This fruit is very highly esteemed, and finds a ready sale in the markets at a much higher price than ordinary berries. On the 14th of June, four crates of the Monarch of the West, in all amounting to 128 quarts, sent to New York, brought $64, while 10 crates of Albanys, containing 300 quarts brought but $42. The country is so full of the sour Albanys, and the market so glutted with them, that there is a great demand for large and sweet berries like the Monarch of the West. The other varieties of strawberries especially worthy of mention, are the Dr. Warder, a bright red and large conical-shaped fruit, of a productive nature and rather late; the Late Prolific, a hardy and vigorous plant with dark green foliage, and large berries of a rich flavor and ripening late; and the Kissena. The latter, we believe, was awarded the premium for the best new seedling at the New York State Fair. It possesses a delicate flavor, and is a very prolific and promising plant.

The severe cold of last winter, besides destroying all the peaches and apricots upon Mr. Parry's farm, killed at least half the crop of raspberries. The red varieties especially suffered most severely, but notwithstanding this great loss many thousand quarts of this fruit will be sent to market from the plantation. Of all the raspberries prized for their delicious flavor and large size among the red berries, the Herstine may be classed first. It stood the rigors of the winter better than any other of its species, and there are at present upon the bushes a very fair crop of this fruit. The Mammoth Cluster and a seedling raised from the Doolittle, were uninjured by the intense cold, and give promises of a most bountiful yield. Blackberries, too, as well as raspberries, were destroyed by the severe winter, and there will perhaps not be more than half a crop of these. The canes are making fine growth, however, and as they are not exhausted by the production of a heavy yield of berries, they are storing up their strength for a most bountiful crop next year.

In the fruit season, Mr. Parry employs about one hundred pickers to gather the berries from the vines, and the quantity sent to market of New York and Philadelphia is immense. For the last two weeks the number of strawberries has reached 2500 quarts daily, and several teams are kept busy hauling them to the railroad station and to Philadelphia. Apples, pears and other fruits are also shipped in large quantities. The canning company at Riverside have this year contracted for all Mr. P.'s cherries, and for a week past, 1000 lbs. daily of certain varieties have been forwarded from the farm to that establishment.

THE ELEVEN SUMMER APPLES RECOMMENDED AT LANSING.—1. *Market List*—Strictly for market purposes, and giving, as far as practicable, a succession through the season.

2. *Family List*—For family or culinary purposes, with a possible surplus for market, and giving a succession.

3 *Amateur List*—For amateur purposes, consisting strictly of dessert varieties, selected for high qualities, with ample varieties and succession.

Apples—Summer Varieties.

Market List.—Early Harvest, Red Astrachan, Duchess of Oldenburgh (second quality), Maiden's Blush.

Family List—Early Harvest. Red Astrachan, Primate, Large Yellow Bough, Maiden's Blush.

Amateur List—Early Harvest, Carolina, Red June (for the southwest), Sine Qua Non, Early Strawberry. Early Joe, Large Yellow Bough, Summer Rose (in certain localities.)

The above constitute the summer varieties of apples recommended by the State Pomological Society at its recent session at Lansing, for market, for the family, and for amateur purposes.

ORCHIDS.—A Nashville paper says: The following notice of these curious plants is taken from the elegant "Catalogue of New, Rare and Select Plants," just issued by our fellow towns-

man, P. L. Nichol: The enthusiastic amateur in England, and other parts of Europe, regards the Orchid as a most valuable tribe of plants. At sales in London, large plants often command, in our currency. $500 each. Their quaint flowers, frequently resembling different kinds of insects, besides their vari-colored and gorgeously tinted hues, justly entitled them to be ranked as the wonder of the floral world. It has been said that nature did everything for the Camelia, except to furnish the flower with fragrance. Not so with some of the Orchids. To the delicate tints of nature's paint-brush is added a charming fragrance. It is safe to predict that as soon as the beauty and value of these plants are well known, they will be sought after more eagerly than any other in the catalogues.

A hot-house is not absolutely required for the treatment of them all. Many varieties of the Lœlia, Lycaste, Dendrobium, etc., like cool greenhouse temperature, with moist air.

After thus writing about the Orchids, Mr. Nichol gives a list of eleven kinds with many sub-varieties. The prices for single plants varies from one to twenty-five dollars.

How to Keep Apples.—At a meeting of the Experimental Farm Club, held at the Farm, near West Grove. Chester County, the subject of picking and packing and stering apples was discussed. Thomas M. Harvey said Dr. Andrew Bush, a very successful fruit culturist, picked his apples when ripe, packed them in barrels with many leaves, and they kept well. Job H. Jackson said that apple raisers in New York placed their apples in barrels with as little handling as possible, and when the weather become frosty, the fruit were put where it was just warm enough to keep them from freezing. He had kept apples by burying them. James Wilson had kept apples until spring by covering the barrels with a straw stack. The great requisite in keeping apples, Dr. Mitchener said, was the most careful handling and as little of it as possible, and an even cool temperature, never allowing the fruit to freeze. Charles Hambleton had kept apples until a new crop ripened, by allowing them to remain on the trees until thoroughly chilled by the frost, and then putting them in a cold cellar. Packing apples in saw dust, dry tan or plaster of Paris had also been tried successfully by several. Another authority says that apples should never be gathered during damp weather, nor when heavy dew is upon them in early morning. It is poor policy to shake fruit from the tree; it will almost surely decay from the effects of bruising. Even the slightest abrasion of the skin is the sure forerunner of a dark spot, which will eventually change into some kind of rot. If possible, each specimen should be taken singly from the tree and handled with the utmost care.—*West Chester Republican.*

FOREIGN INTELLIGENCE

Medinilla Magnifica.—This truly grand and ornamental melastomaceous plant is again much sought after by amateurs, and the wonder is to me however it came to be pushed on one side at all, for when a well-grown plant is in flower the effect it produces is most gorgeous. This is undoubtedly the finest known species of the genus. There are, however, several other kinds which, although they produce much smaller panicles of bloom, are yet well deserving a place in every stove on account of the gay and pleasing effect they help to produce during winter, a season never too prolific in handsome flowers. I allude to such species as M speciosa, Sieboldiana javanensis, and a few others.

Medinilla magnifica may be reckoned amongst the easiest of plants to cultivate The soil should consist of two parts good fibrous peat, one part loam, and sufficient sand to make the whole feel gritty when taken in the hand. To this may be added with considerable advantage a little thoroughly decomposed manure, whilst the drainage must be both ample and in good working order. It requires a moist atmosphere and the temperature of the stove, as will be well understood when we state that it is found growing in company with Pitcher plants in the mountain forests of Java, at an altitude of about 3000 feet. During the growing season a liberal supply of water both from the watering

pot and syringe is essential to its well-being, but it will naturally occur to the cultivator that less is necessary in winter. On no account, however, must the plants suffer from the want of moisture at the roots, otherwise it will lead to the casting the leaves, which will render it anything but a credit to the cultivator or ornament to the stove.

The plant attains a height of upwards of three feet with age, and then forms a fine, much-branched shrub. It is perfectly smooth throughout, the stems and branches being four-winged; leaves opposite, from six to ten inches long, broadly ovate, and clasping the stem at the base, whilst the color is deep shining green. The panicles are terminal and pendulous, some eighteen inches long, ornamented with large bright mauve pink bracts, which are arranged in whorls of four. The numerous flowers are rosy pink tinged with purple, and the effect produced by a plant bearing some dozens of such panicles of blossom must be seen to be appreciated. Its usual time of flowering is the end of April and May, but if required later in the season it must be kept in a somewhat lower temperature and shaded from the effects of the sun. By this means it may be retarded for a considerable time, and that, too, without injury. It seems to have had the name of Medinilla bracteata erroneously tacked to it upon its first introduction.—*Journal of Horticulture.*

CHANGES IN THE PROXIMATE PRINCIPLES OF HERBACEOUS VEGETABLES.—Deherain maintains that the proximate principles of vegetables migrate from the older to the newly formed leaves, and that this migration is associated with a transformation of glucose into cane sugar, while, when the seed is formed, the cane sugar is converted into starch and the albumen into gluten, both insoluble. In this way the conversion of soluble into insoluble principles and the accumulation of substances in the seed is accounted for, and is illustrated by the following experiment: If a porous vessel, containing distilled water, be placed in another vessel containing a solution of cupric sulphate, the salt penetrates by diffusion into the inner vessel. If then a few drops of baryta water be added to the inner vessel, the salt is precipitated, the equilibrium is disturbed, and a new portion of cupric sulphate diffuses into the inner vessel. The salt may be again precipitated by the baryta water, and the operations repeated till eventually the whole of the cupric sulphate will have passed into the porous vessel, and there become precipitated.

THE ESPARTO GRASS.—At the Society of Arts recently, Mr. Johnston read a paper on Esparto Grass (Macrochloa tenacissima), now so largely used in the manufacture of paper. The leaf is the portion used, and the imports have risen from fifty tons in 1856 to over one hundred thousand tons in 1870, standing second in this respect to cotton only. The plant grows best on the sea-coast of southern Spain and northern Africa, and there seems no reason why the culture should not be largely increased both in the native country of the plant and in other regions with similar climates, etc. The plant is reproduced by seed, by transplanting.—*Gardener's Chronicle.*

ENGLISH GRAPES.—On one occasion George III. was so pleased with a performance at Drury Lane Theatre, that he gave orders for a hundred dozen bunches of grapes to be cut off from the Hampton Court vine, if so many could be found upon it, and sent to the actors. The gardener executed his commission and informed his royal master that he could still cut off as many more without stripping the tree.—*Food Journal.*

THE POMEGRANATE.—This truly beautiful fruit deserves more attention than it obtains in this country. To bring it to perfection, a very warm south wall should be appropriated to it, and it should be trained fan-shape, and thinly spread on the wall, so as to admit as much sun heat to it as possible. I recollect many years ago seeing it well done at Walton-on-Thames, in the garden of the Earl of Tankerville, where it annually bore some beautiful fruit, but whether they were fit for table or not I do not now recollect. There are three fruiting varieties of it, *The Sweet*, *The Sub-acid*, and *Acid-fruited*: the first is the only one worth cultivating for the fruit. There is also the ornamental varieties—scarlet, white, and yellow, with double blossoms, very ornamental. In their cultivation the Paris nurserymen excel. Grown in small boxes, about a foot square, most charming and well-flowered little plants are regularly brought to the flower markets, and meet with a ready sale. The reason we do not succeed with them is, we do not get the wood thoroughly ripened, *and we do*

not give them enough of rest. The same observation applies to Orange trees, and many others. There is a popular error that an open mild winter brings an early spring, and we see nearly all our periodicals giving countenance to the fallacy, because in some warm nook a Primrose, a Snowdrop, or the hardy Aconite, etc., dares to put in an appearance.—*Scott's "Orchardist."*

ANTHURIUM SCHERZERIANUM—Of the many plants introduced within a comparatively recent date none are of more value than this. For the embellishment of the stove, as well as for the decoration of the dinner table, it is simply invaluable, and cultivators may well congratulate themselves on the fact that small plants may be procured for a few shillings. It is, as a considerable number of the readers of these remarks are aware, neat in growth, and the spathes, which remain in good condition for a very considerable period, are of the most brilliant hue. It will be found to thrive in a mixture of sphagnum and fibrous peat, incorporated together in equal parts, and a moderate proportion of nodules of charcoal then added. The pots should be filled to about half their depth with crocks, and the base of the plant elevated two or three inches above the level of the rim. The surface should be covered with live sphagnum, as the carpet of green materially enhances the appearance of well-developed specimens when in bloom; the humidity arising from it is highly conducive to a healthy growth. Liberal supplies of water are essential to success, but of course the application of water must not be overdone, and the health and condition of each plant, as well as the season of the year, must be taken into consideration. To ensure the plants flowering early in the winter, start them into growth early in the spring, by placing them in the warmest corner of the stove, and afford them the assistance of bottom heat, if available.—*Gardener's Magazine.*

MOUNTAIN WHITE PINE (Pinus flexilis).—This species occupies the sub-alpine belts of the Rocky Mountains and the Sierras. It differs very much in size. At 10,000 feet altitude it is a tree of 130 feet high, and is from 2 to 3 feet in diameter; but on the high exposed crests of the Sierras and Mount Shasta, it is reduced to a mere straggling shrub, creeping on the ground. The cones in consequence vary considerably in size. Where the tree has obtained a stately size, as is the case on the mountains of an elevation of 10,000 feet a little east of Little Yosemite Valley, its cone measures from 4 to 5 inches; but where it is reduced to mere shrub, they are scarcely from 1 to 2 inches long. It is a fine tree with tapering trunk and conical outline, branching almost from the base; the lower branches are horizontal, the upper ones ascending. The wood is white and soft; the annual rings from one-eight to one-half line, on an avarage one-fourth line wide. In the Rocky Mountains it occurs from New Mexico to the forty-ninth parallel, never forming entire forests. There it associates with P. contorta and P. aristata. On the high crests of the Sierras it is found growing along with P. contorta and Abies Pattoniana. The species sometimes described under the name P. albicaulis, and P. cembroides, is P. flexilis.

EXHIBITION ROSES.—We will just jot down the names of a few favorite kinds well and frequently shown other than those already mentioned. They were Prince Camille de Rohan, Louis van Houtte, Pierre Notting, Monsieur Boncenne, very dark; Marquise de Castellane, Madlle Eugene Verdier, Abel Grand, Marguerite de St. Amand, or St. Arnaud, Elie Morel, Emilie Hausberg, Marie Baumann; Paul Neron becomes coarser and coarser, though so large; Senateur Vaisse and Maurice Bernard n, close and symmetrical, splendid color, but appear falling behind; Clemence Joigneaux, Ferdinand Lesseps, Vicomtesse, Vezins, Antoine Ducher, Old Comte de Nateuil, Devienne Lamy, Madame Rival, Josephine Guyet, promising; Madame Morea, fine close crimped face, somewhat like a prize hollyhock, but flatter, large; Lælia Madame Jacquin, Charlotte Corday, Victor de Bihan, Marquise de Mortemarte, Leopold I, Victor Verdier, Jules Margottin, and a few others were also sparsely scattered abroad, but to extend our list further would encroach too much on the space at our command.

The Yellow Roses were well represented, interspersed with other tints, as well as *en masse* in the class for a collection of yellow roses. They were, of course, Marechal Niel, Celine Forrestier, Triomphe de Rennes, and Gloire de Dijon Others were Bould d'Or, fine, and Madame Margottin, which appears coming into vogue.—*Report of Exhibition.*

HORTICULTURAL NOTICES.

PENNSYLVANIA HORT. SOCIETY.

It no doubt surprised most persons who read in the *Country Gentleman* a few weeks ago, and who saw the exhibition of this Society in September, to be told that it was "said to be a great success, but that it was evidently made up by a few florists," or words to this effect. So far from this being true, there were nearly *one hundred* exhibitors, a greater number than ever contributed to any horticultural exhibition in the United States before. It was undoubtedly the success it was "said" to be, as no doubt the *twenty thousand* persons who visited can well testify. The officers of the Society—at least the four on whom most of the hard work fell—may well be proud of the result. Messrs. Mitchell, Houghton, Andrews and Harrisop, deserve well of this Society, if anybody does.

One of the best improvements this year was in tasteful stands of cut flowers. These were arranged by the Society. Three of the larger ones were filled by collections from H. A. Dreer, Miller & Hayes, and Meehan's Germantown Nurseries. Each of these had between one and two hundred named plants, and besides the elegant appearance they made, it gave an excellent opportunity for people to learn the names.

Mr. Marot made a good display of the wild Sarracenia purpurea in a rustic stand. Mr. H. E. Chitty of the Belleveu Gardens, Paterson, N. J., had a choice set of new plants. The common Gnaphalium lanatum, with variegated leaves, variegated Mesembryanthemum, and a beautiful pale-blush double geranium named Alice Crouse, were the most striking.

Geo. Foust, florist, had an excellent lot of new plants. Hechtia Ghiesbrechtii, an aloe-looking plant with deep green leaves, Terminalia nobilis, and Maranta illustris, with beautiful feather veins in the leaves, were nice things to have. R. Buist had a beautiful lot of new things. Antigonum leptopus was very striking, and one of the best things introduced for many years. It is a climber with something the appearance and habit of a Dioscorea, but it has beautiful racemes of rosy-pink flowers. Dichorizandra Morrisonica, of the spider-wort family, has broad leaves beautifully pencilled. Croton undulatum has red spots on its green leaves, and pretty crisp-wavy edges. Then there were three beautifully marked leaved Dioscoreas D. metallica, D. chrysophylla, and D. melanopeuce. A beautiful Lycpodium, called Selaginella setulosa, and a Hibriscus marginata. He had also the new crimson-leaved Celosia Huttonii, as also had Mr. Dreer. Mr. Joyce, gardener to Mrs. Baldwin, had his usual finely-grown plants,—the pretty butterfly orchid Oncidium Papilio, and the "fossil leaf" Anthurium grandis, attracting many lovers of the curious. Mr. Dreer had many plants of interest. A large woolly leaved Salvia argentea looked as if its silvery leaves might be brought into play in some way in our modern gardening styles. A Boumapartea juncea, seldom seen in flower, also adorned his collections. In cut flowers, Roses, Dahlias, and Gladiolus predominated.

In Mr. McKenzie's plants the Agave Sisalaria, one of the most unique in its foliage, was present; besides numberless small plants of various kinds, which gave great variety among so many in larger pots. Gerhard Schmidt, one of the most persevering improvers of the Dahlia, had a nice lot of good seedlings, but no names or numbers by which we could identify them. Hugh Graham had a beautiful "bridal arch" as a design. Nothing more pleasing of the kind was ever seen in the Hall. The pillars were formed of bouquets, which were given away to the visitors every night. Some *three hundred* were thus distributed. R. Buist, A. Graham, and A. Newett, gardener to H. Pratt McKean, all had choice collections of Palms and Ferns. The Caladiums of H. Graham were remarkably well grown, being not so much drawn up as usual.

Mrs. Bissett is quite a fern fancier. In her collection there were no less than twenty species of Adiantums. Mr. B. W. Johnston, gardener to Mr. Camac, had a design for massing a flower garden. It was beautifully executed, and attracted perhaps as much attention as anything in the Hall. In Mr. Alex. Newitt's, (gardener to P. McKean, Esq.) collection there were some glorious specimens of the old fashioned cockscomb, the heads about one foot across. Besides these there were numerous other exhibitors, whose meritorious articles would take a whole magazine to detail.

The vegetable department was well sustained. Some Peerless Potatoes by Michael Walsh, gardener to W. Massey, Esq., were remarkably

fine; and some specimens of corn, 15 inches long, by A. S. Felton, could perhaps hardly be beaten. The fruits were fully as fine as at any former exhibition, fine as most of these have been. Ellwanger & Barry had 350 varieties of pears, in which the Souvenir du Congress was conspicuously excellent. The Salt Lake City folks had an excellent contribution, in which the Plums were no mean attraction. Mr. John Perkins of Moorestown, N. J., had 81 varieties of apples. Hovey & Co., Boston, 50 varieties of pears; Smith & Powell of Syracuse a large number of varieties, in which Flemish Beauty, Hosenshenk, De Tongres, Des Nonnes, and Seckel, were unusually fine and attractive. Thos. Grigg of Vineland, N. J., had very fine pears, of which the Duchess D'Angouleme were as fine as are rarely seen. Mr. W. Joyce, gardener to Mrs. Baldwin, had superior grapes, especially in regard to the Black Hamburgs and Muscats. The collection sent by Alex. Cox, gardener to Edward Wright, was interesting from so much variety. Black Frontignan and Bowood Muscat had remarkably fine berries. In the California collection of pears were some Beurre Clairgeaus that would weigh three-fourth of a pound. Samuel Noble had a small, but very well grown collection of apples. The Porters and Cornell's Fancys attracted general attention by their size and beauty. Gebhard Huster had very fine hothouse grapes, some of the Muscat Hamburg being eighteen inches long. In Satterthwaite s collection there were good specimens of the Rutter pear, a variety he thinks very highly of. Mr. Ricketts of Newburg, N. Y., made a splendid show of native seedling grapes There were, perhaps, fifty kinds, and so many of superior quality, that if some do not prove better than what we now have, it will be a poor business to try and improve the breed hereafter.

Among the peaches were dishes of Delaware White in excellent condition. It is a good rival to the celebrated Smock peach. There were from Mr. Hiron's. Mr. R. Moore of Camden, N. J., had as fine Concords and Marthas as were ever exhibited. He manures with dead carcasses. Then there were peaches from a tree one hundred years old; and no mean ones either. It would take the best of the new varieties to beat them. H. C. Williams of Fairfax, and Chamberlane of Acotink, both represented Virginia worthily in fruits. The apples were especially distinctive. Jos. H. Kent of Russelville, also had very fine peaches, in which the excellence of old Mixon Free, and Susquehanna, a large yellow peach, was conspicuous.

GERMANTOWN HORTICULTURAL SOCIETY.

It is a pleasure to note the increased attention given to local horticultural societies. The larger ones can have their immense collections which will attract visitors from far and near. Those of more moderate pretensions improve the home taste; and caring for smaller things which would be too small for more popular institutions, fill a nitch in general utility which no other means could do so well.

The Germantown Horticultural Society is one of these modest institutions, which, in an humble way, do a world of good. The September meeting was a grand success, and in looking through the exhibition, we noted a few points which may be of general interest.

Mr. Robert Fergusson, of Laurel Hill Nurseries, had a Yucca gloridsa in flower. Unlike G. filamentosa, this fine species flower rather late in this part of the world; but in a tub under glass as this was, there is a chance to enjoy its great beauty. The plant otherwise is hardy, and without flowers is always appreciated.

Begonia Evansiana, one of the oldest, but yet one of the best, was frequent in the small collections, as it well deserves to be. It is one of the easiest to take care of. In Mr. L. C. Baumann's collection, was the rare, rather, but yet very beautiful Gesnera Donkleari; also worthy of general culture. Begonia Mad. Celeste, by John Carey, gardener to Dr. Ashton, is one of the best of the leafy kinds. In the collection of Miller & Hayes of Mt. Airy, Germantown, was the striped leaved New Zealand Flax, which always attracts attention. Yucca recurva, in the same collection, is one of the best for vases and garden work, requiring artificial looking leaves. A wreath of Pansies made by Miller & Hayes was a good idea, and well carried out. Mr. H. A. Dreer of Philadelphia had a nice collection of cut roses, in which Teas for the most part predominated. The cut flowers, as in most of the exhibitions for the past year, were numerous, and exhibited taste in the arrangement. L. C. Baumann of the Manheim Street, W. E. Meehan of the Germantown, and J. Meyers of the Mount Airy Nurseries, were the leading exhibitors.

Fruits and vegetables also were in great pro-

fusion, and the exhibition, well attended by visitors, was a great success.

MASSACHUSETTS HORTICULTURAL SOCIETY.

As referred to in our last, the exhibition of the Massachusetts Horticultural Society was by no means the least of the enjoyments furnished to the delegates of the American Pomological Society, in connection with the recent meeting in Boston. The fruits were in the Horticultural Hall, and in connection with the fruits of the American Pomological Society, so that the real exhibition in the Music Hall had to be sustained by flowers alone.

Of late so much attention has been given to Echeverias, and other succulents for out-door decoration, that people love to look on collections of these, so as to get more material to work with in bedding out gardening, as for the interests attached to the many peculiar forms and characters which the numerous species represent. There were here two very fine collections of perhaps two hundred each from Hovey & Co., and from the Cambridge Botanic Garden. Ferns and Palms are also very popular here as exhibition plants. Flowering plants do not seem so much in vogue. J. W. Merrile had in one collection one hundred and fifty species of ferns. One of the finest grown specimens of ferns on exhibition was a Woodwardia radicans, from the collection of President Strong. Hovey & Co. and Mrs. Ward had collections all remarkably well grown. Some tree ferns, with others, were a striking feature in the collection of S. B. Peyson. Among the ferns exhibited by E. Butler, was one of the best imaginable of the climbing fern *Lygodium scandens*. It is a wonder it is not oftener seen in fern collection. This one was on a cylindrical trellis about 5 feet high.

Leaf plants were also very numerous. Caladiums, Dracænas, and Coleus, particularly so Most of these were from Hovey, Strong, and H unnewell.

Though flowering plants in pots were not numerous, cut flowers formed an especial feature, and were, on the whole, highly interesting and exceedingly well arranged. The side walls had narrow sloping shelves against them, filled with lilies in great profusion, Pampas Grass, Double Zinnias, Phloxes and the Myrsiphyllum asparagunoides called here, *Smilax* everywhere. It is one of the most effective plants for decorative purposes, as well as graceful as a fern, it is almost as durable as if made of green wax. The Gladiolus were very fine, and J. S. Richards had an especially grand collection. The Double Zinnias of Hovey & Co., and the Dahlias of Chas. V. Woer, were as perfect as we ever saw these flowers. Either the climate must be excellent for them, or the cultivators possessed of superior skill. C. A. Law, of Roslindale, had beautiful Dahlias but no names to them, which took away half of the interest Perhaps as much interest centered round a collection of wild flowers by Miss Carter, as on anything exhibited. These were not huddled in anyhow, as if anything were good enough for wild flowers, but were well arranged in glasses on a conical series of narrow shelves. This neatness in arrangement was characteristic of most things shown. H. Gleason's Gladiolus for instance, was in a similar round stage. In the centre, or rather towards the top, were large masses of showy Tritomas, and between these and the Gladiolus, a dividing line of ferns.

The baskets and designs of cut-flowers were very tastefully arranged. Tuberoses and "Smilax" entered largely into the make up, and good use was made in some instances of the blue Agapanthus umbellatus. A basket by Miss Sarah Storey was one of the prettiest we ever saw. It is gratifying to note, in connection with this exhibition of cut-flowers, that most of the competitors were not professional florists. Michael Welsh had a design for massing, the flowers stuck in damp-sand, showing the colors necessary to be most effective. This is an excellent way to educate the masses.

The hanging baskets and the rustic stands were, like the cut flowers, well arranged, and spoke well for the refined taste of the people of Boston One in Hovey's collection much impressed us. The plants employed were chiefly the common variegated Vinca, variegated Panicum, Cissus discolor, common Ivy, and Maiden Hair ferns.

As a beautiful ornament for a lawn, nothing perhaps was more attractive than a specimen of the common Broad-leaved Italian Myrtle, by an exhibitor whose name we did not get. It was about ten feet high, and regularly about two feet thick, forming a perfect cylindrical mass of thriving green from the tub to the apex. It was thought to be a great honor in the past to be crowned with the myrtle wreaths; but we would prefer to own a plant like this.

ELÆAGNUS PARVIFOLIUS.

(*Silver Thorn.*)

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HINTS FOR DECEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

We have frequently urged the importance of planting places very thickly at first, in order both to produce an immediate effect, and also because the shelter which one another affords makes the trees grow with greater health and vigor, than when exposed singly to the force of wind and sun. At this season no better employment can be found than in thinning out these thick planted places. It will of course require much judgment; but one fond of trees, and the effects which they produce, will not be much at a loss. Sometimes it is hard to bring oneself to cut down a tree which one has watched grow for so many years; but it often must be done if we would preserve the symmetry and beauty of our places. When there is any question as to the proper tree to be taken away, the size of the place may help one to decide. A tree which will in time occupy much space can be more easily spared from a small place than one which will never transgress a limited space. Indeed, except for the purpose of rapid growth to nurse more valued trees, large growing things should not be tolerated in small places. The green grass which is the charm of all gardens soon departs when large trees are about.

Of course, this talk about thinning out, brings us to another great winter employment, that of pruning. There is no very great amount of science required for this, and yet some judgment is necessary. This is often done with little more reason than a boy has for whittling a chip—merely to have something to do. For, notwithstanding the many papers that have been written "on the philosophy of pruning," the naked question, "What is the best time to prune trees? is one with which the gardener is continually bored. The keen-edged gardeners give the cutting reply, "any time when your knife is sharp;" but the more good natured say, "It depends on what you want to cut for." The street cutter "wants to keep the tree head low," and cuts down to make them branch lower; cutting in winter does not have this effect, so that unless one has some other object to combine with it, such as to clean the tree of bark scales or the larva of other insects, or the giving of employment to some half-starved tree carpenter, the work might as well be left undone. If you want a branch to push strongly at the point where you cut a part away, *prune in winter*. If your tree has branches crossing each other, or has half dead branches, or anything tending to spoil the form or symmetry of your tree, prune in winter; but as a rule the less pruning is done the healthier will be your trees, for it may be accepted as a rule in gardening that all pruning, whether in winter or summer, is a blow struck at the vitality of the plant.

Very few understands that an occasional change of soil is very beneficial to flowers in beds, though all know how important it is to flowers in pots. There is nothing better than surface soil from an old pasture, taken off about two inches deep, and thrown into a heap with about one-sixth part old hot bed dung to partially decay. In addition to this "staple" item, smaller quantity of different matters should be gathered together for peculiar cases, or particular plants. Peat, for instance, will be found very useful for

many kinds of plants. This is not, as is often supposed, mere black sand; but a spony, fibrous substance from the surface of bogs and boggy wastes. Sand should be collected sharp and clean; the washings from turnpike ditches are as good as anything. Leaf mould is best got already well decayed from the woods. That one makes for himself from rotten leaves is seldom good for anything; it is always sour and seems "indigestible" to vegetation. A load or so of well-decayed cow-manure is a good thing for the gardener to have by him, as all those plants that dislike our hot summers, and want a cool soil to grow in, prefer it to any other manure. A small pile of hot-bed manure is almost indispensable to the garden.

In thinning out trees, the best plan is to open the soil away from the stem a few inches under the ground, and cut it away with an axe. Often the regret to lose a fine tree induces an attempt to transplant; generally, such trees fail from the usual difficulties of removing large trees When they succeed, they seldom grow with a healthy vigor, and when they have escaped all these, an ugly spot is left on the lawn where the trees came out; for the grass will grow stronger there for years to come, and the lawn have the irregular appearance of a cattle pasture. This is the best season to mark such trees and shrubs as it will be desirable to thin out, and early in spring the axe may be allowed to do its duty.

Many kinds of trees that do not seem to thrive well, will be greatly improved next year by having a surface-dressing of manure or rich soil thrown about them. Evergreens are no exception. A singular notion used to prevail, that manure of any kind was injurious to evergreens, probably through noticing that they were usually found in poor, barren soil. Our best American coniferæ growers, however, have long practiced manuring them, and with the best results. Guano has been found particularly beneficial to the Spruce family, and will probably be found as good for the whole family of evergreens.

It would be well, at this season of leisure, to examine and decide on the course of improvements for the ensuing year.

It does not, in very many cases, require much time or money so to alter the appearance of a place as to make it bear a very different look to what it did in the past year. A new clump of cheap shrubbery may be planted, or an old one taken away to admit a new view that may have grown up since the original planting. A strip of grass may be laid down on what was once a bare gravel. Here a small rockery may be put together; there a nest of roots thrown up, and ferns and trailing plants freely interspersed between them. In this corner you may place a stump, and entice Ivy or some other climbing vines to grow over it—a rustic arbor may be formed in some inviting nook, and in another shade-enticing spot, a rustic chair or bench be fixed. Even the outlines of the flower-beds may be changed, or of the walks themselves, or even the contour of the surface in some instances, and all, in many cases, at the expense of a very small expenditure of time and money.

In all these undertakings, money, time and vexation will be saved by consulting with men who make it their business to study such matters. Every one can, of course, design and lay out his own garden, just as well as he could make his own coat, or design the pattern of his own chandelier; but he will find, in the end, that his landscape-gardener, his tailor, or his manufacturer of lamps, would have done the work much more satisfactorily for him. Many suffer from ill fitting garments and ignorant pretenders; but the man who has not tact enough to discriminate in this respect, through employing botches, deserves to suffer by badly designed gardens.

VEGETABLE GARDEN.

Very little can be done now in this department, except by way of preparation for another year.

Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean-poles, Pea-brush, and stakes of all kinds should be got now, the tool houses gone over and put in order, and everything kept in good order and studiously in its place. When the season of operation commences, there will then be nothing to hold back the attention.

Where there can be a heat of 60° commanded, Bush-beans can be easily grown in pots, and can be gathered in two months from the time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early spring salads at the end of the month.

Radishes and Lettuce are, however, very impatient of too much heat; they will come on well if the temperature be kept at 45°. When it goes

above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.

Cauliflowers in frames require all the air possible. Never allow them to become dry; this is the cause of many failures by way of "buttoning off."

COMMUNICATIONS.

RECOLLECTIONS OF PARRAMATTA, SYDNEY, AND BOTANY BAY, NEW SOUTH WALES.

BY W. T. HARDING, AGRICULTURAL COLLEGE, COLUMBUS, OHIO.

(*Concluded from November No.*)

From near the Orange River, on the coast of Africa to Cape Town, following the coast line to Algoa Bay, and on to Port Natal, where they are successfully cultivated, I have often enjoyed them. At Mauritius and St. Helena, too, where they are exceedingly prolific, and of excellent flavor, I have eaten them. In Jamaica I found them in abundance, sweet and good. The same may be said of them along the shore of the Mediterranean, and in South America. Still further away at the Antipodes, I found them equal to any I met with in other lands. In New Zealand, Tasmania, Norfolk Island, and the several colonies of Australia they are equally good, sweet and grateful to the palate. In the neighborhood of Parramatta and Sydney they are cultivated extensively, and produce enormous crops. Competent judges pronounce them *super-excellent*.

At the celebrated Botanical Garden at Woolomooloo, a pleasant suberb of Sydney, (to which I previously alluded in the *Monthly*) I saw some splendid specimens of the genus Citrus in cultivation, embracing the Orange, Lemon, Shaddock, Lime, &c., in all their recognized varieties. During the extreme drouth which occurred there in 1827, '28, the superb collection of the Citrus family were literally burned up with the intense heat from the furnace-like blasts of hot winds, which then prevailed throughout the colony. The pen of William Howitt has graphically described it.

But what was most singular, in regard to other fruit trees imported from colder climates, was their being able to live through the fiery ordeal comparatively unscathed. Such trees as apples, pears, peaches, plums, apricots, and cherries, remained uninjured, while plants and trees from warm and sunny climates perished. It is one of the marvels of nature we cannot well understand, any more than "the reason why the evergreens of Northern Asia stood the intense cold of the winter and spring of '72 in this country better than the American natives." They are too "hard nuts" for scientific molars to crack. "The hard nut" Mr. Buist offered some time ago, has not yet been cracked satisfactorily.

As the impressions were received of the various places I arrived at, so I got them down from time to time; and if they appear to the reader rather zig zag, they are nevertheless as straight as I can draw the line of facts which have guided me thus far. Whenever I pronounce one spot more delightful than another, a tree, fruit, or flower, more beautiful than others, it is because I thought and felt it to be so then. So, if I say Parramatta excels all other localities, with its winding river and romantic surroundings, its fields of pine apples, plantations, groves, and orchards of loquats, figs, olives, dates, bananas, guavas, peaches, pomegranates, apples, pears, tamarinds, &c., which cover the sunny banks, from which peep out from among the delightful greenery, pretty villas, elegant mansions, picturesque cottages, and pleasant homes, it is because it seemed so. The grape vine, with its proverbial fruitfulness, revelled in wild abandon among the trees and vineyards which skirt the beautiful river. Some of the most exquisite scenery nature had shaped into pleasure spots, lay along each side of the stream. The landscape gardener, too, had displayed a rare skill, both in natural and gardenesque style, in improving and laying out the grounds about the dwellings of the weathy classes, government officials, merchants and *lucky* diggers.

The attention of the ornithologist is pleasantly drawn to the great variety of beautiful plumaged birds, which perch and flit about the

overhanging trees which droop over the river, and display their brilliant pinions among the rich foliage and pretty flowers so conspicuous in the pictures of Australian scenery. At the discharge of a gun thousands of splendid colored birds start from the bushes, and for the moment appear like a grand pyrotechnical display, or the many colored flash of an immense kaleidoscope. The vast number of water fowls, on the lake-like ponds and lagoons of the Murry and its tributaries, are a wonder and surprise to the stranger. Flocks of black swans, gently sailing along the rivers, are frequently seen, while blue and white cranes wade about the streams by thousands. To the Australian Sheildrake, is conceeded the palm of beauty. Its splendid "coat of many colors" is really magnificent, and their flesh being free from the usual *fishy taste* of water fowl, are excellent eating.

After a pleasant sojourn among the orchards, vineyards, and gardens around Parramatta feasting upon the many varieties of home and foreign fruits, until sated with sweetness, we secured a passage on a steamer to Sydney, some fifteen miles distant.

Ever to be remembered, like a "red letter-day," in the calendar of life, was our trip down to Sydney; and on along the coast to Woolongong, Kiama, Jamberoo, and Sholehaven. All pleasant spots, and delightfully situated among the most romantic and exquisite scenery. They are favorite resorts for pleasure parties, presenting splendid sketches and sweeps of river scenery, villas, gardens, parks, and pleasure grounds, on the rocky and umbrageous bays which indent the river. We know we are nearing the ocean by the mangrove thickets which reach down to the water's edge, and the heavy motion of the billowy sea which strikes the ear. Stepping on shore, and being "in light marching order," I soon reached the "South Head." From the rocky bluff, near the light-house, the grand expanse of the broad Pacific meets the eye. While gazing at "the vasty deep," and listening to "the murmuring motion of the never weary sea," recalled to memory Byron's words:

> "Time writes no wrinkles on thine azure brow,
> Such as creation's dawn, behold, thou rollest now."

Returning to Sydney, I perambulated its broad and well-paved streets for the last time, until I reached the Domain, or Public Park, and Promenade at Woolomooloo in the suburb. Adjacent is the excellent Botanical Garden, and of which the colonists evince a just appreciation. But unfortunately at the time of which I write, the golden attractions of *the diggins* had altered "fair sense" from her pleasant walks, while "the student's book, and his favorite nook" were abandoned, and "Fair Flora" was left to languish unloved and alone. But olden memories were not forgotton, when steadier times returned, and "the light of other days" beamed brightly again.

In the halcyon days which followed the votaries' of Flora, Ceres and Pomona, who had not forgotten their first love, or renounced their fealty to the shine of nature, met beneath the evergreen shades of Woolomooloo, and cheery with hopeful auguries for the future welfare of the garden, reached down their silent harps, and again "sung the lay of a happier time." But adieu! to the garden: sweet source of many a pleasant hour, I shall never tread thy peaceful paths again!

Referring once more to Sydney, what a beautiful English looking city it seems, with its noble granite structures which have a firm and enduring look about them so like old England. No tinsel or pasteboard shams, but weighty, massive and solid as the rock upon which they are built. Most of these fine specimens of architectural skill were raised by convict labor, during the time it was the head-quarters of the penal settlement of New South Wales. There, in the year 1780, the British Government transported the first gang of felons. Happily for the colony now, it is no longer tainted with the convict element, and bids fair to become, ere long, one of the most favored and fertile spots in the "Promised Land."

Bidding a "heartfelt, warm adieu" to the friends I left behind me, and having made arrangements for a passage to Melbourne on the following morning strolled along the shore of Botany Bay for the last time, and sat down on the beach, which is marked as the spot where those pilgrims of the ocean first landed, namely, Captain Cook, Sir Joseph Banks, and Dr. Solander. The afternoon was calm and pleasant, with scarcely a ripple on the bosom of the sea, which gently and sweetly murmured in musical cadence, as it rolled at my feet. Impressed with feelings akin to sadness, reflective memory went back to other days and other lands. In ideality, how vividly I remembered the time, when a boy, and how my evening studies were divided between "Pinnock's Catechism of Botany," and a well-thumbed copy of "Captain Cook's voyage

around the world." How my young heart yearned for the brave marine, as I followed him and his gallant crew *by the book*, in the ingle nook of an English fire-side. How much I longed to become a botanist like Banks or Solander, or a navigator like Cook, and "go down to the sea in ships." In fancy, I felt as though I was one of them. Then I had not seen the mighty deep, nor the wonders of foreign lands. In the lapse of time, while pursuing my calling, what changes have occurred since then! Many and strange have been the mutations of my fortune—chastened by affliction—anon, cheered by brighter prospects,—sometimes even in the enjoyment of prosperity—"all sunny sheen." Again, perchance sinking amid sorrows—yet in each, and all of life's vicissitudes, my love and attachments to nature have not faltered; nor will not, as long as I recognize in its kingdom a benign Creator.

Botany Bay, edged in by thousands of beautiful trees, shrubs and flowers, lay before me. In the distance rolled the wide Pacific. Landwards, the highest peaks of the Australian Alps reared their summits, some seven thousand feet above the sea level.

As the mantle of night gently fell over nature, the silvery sheen of the moon's soft splendor burst through the portals of heaven, where, silently keeping her long vigils through thousands of years, she had calmly looked down on the mundane affairs of the world, and still seemed to keep watch over me. Like a shining emblem of the Christian's faith, and with a conspicuous glimmer among the myriads of twin king stars, shone the bright constellations which form "the Southern Cross" in the austral sky.

Such was the last night the writer spent in New South Wales, and on that account was too precious to be spent in unconscious slumber. Well knowing that "time stays for no man," I resolved to apply the few remaining hours as profitably as I could, with the trees, shrubs, and flowers, I had so often and happily wandered among. I gathered a few souvenirs and mementoes, as reminders of the spot, to be looked at with pleasant recollections when far away. Some curious crustaceous specimens I gathered on the beach, with marine and terrestrial vegetations, hoping at some future time to see them in a "cabinet of curiosities." However, that was not to be. They were subsequently lost, with most of my worldly goods, myself narrowly escaping, when the ill-fated "Merope" went down. Of the miseries I then endured, ere I trod on "mother earth" again, God and myself only knows.

As the morning broke, I could see the masts of the S. S. "Cleopatra," Captain Cadell, bound for Melbourne, and was soon after on board, where I must leave you, Mr. Editor, and the readers of the *Monthly*, whose weary feet have thus far wandered with me. Perchance we may meet again.

EXPERIMENTS WITH PEAS.

BY K., PHILA.

Early in the spring of 1873, the editor of the *Gardener's Monthly* placed in my hands packages of peas which he had received from various sources, with the request that I would report on their merits when tested.

As soon as the frost was out of the ground, I planted the peas on a piece of ground favorable for this vegetable,—a row of each and all side by side.

The Advancer was ready, and gathered for use on 24th of June, Wonderful on the 26th, Champion of England on the 27th, Half Dwarf Sugar on the 27th, Knight's Dwarf Marrow 29th, J. F. Wilson 30th.

The Advancer, though a few days earlier, does not bear as well as the Wonderful, although in this respect it is fair; but to my taste, and those who at a tolerable large table ate them with me, the Wonderful has much the best flavor. Indeed I regard it as the best flavored of any named. The Champion of England has large peas, but the crop on the whole was no greater than on the Wonderful; and in other respects not quite so good. Knight's Dwarf Marrow was the best bearer of all of them. I suppose it would fill the bill for those who prefer quantity to quality. To be sure it is good enough for most people to whom a pea is a pea and nothing more; and only that we were on a tasting committee, we might not have concluded the flavor not so good as the Wonderful; and as to half dwarf,—the whole dwarf must be a pretty tall fellow. These where all grown on pea-brush, and there was little difference in the height of any of the kind. The half Dwarf Sugar was also an excellent bearer, mostly being produced at the tops of the stems.

J. F. Wilson I was rather disappointed in. The peas were very large, but many of which there were the embryos in the pod failed to

perfect. Still it was nearly as good as any, only we expected much more from it.

I may remark that the pea is a very capricious vegetable. I do not think the same result would always follow in every place as here; nor do I think they would always come as here on my own grounds. Still, with the result of this season, I am so well satisfied, that for my own use I shall plant largely of Wonderful another year.

I feel much interested in the pea question since trying these experiments; and if any one has made comparisons wi'h other kinds or with these, I would be glad to know through the *Gardener's Monthly.*

DESTRUCTION OF MEALY BUG.

BY HERMANN MUNZ, MEADVILLE, PA.

We have tried most all recommended methods to destroy the woolly insect or mealy bug, and found them more or less unsatisfactory. At last we found a method of destroying this insect —most hated by all florists, which we practice in our greenhouses with the greatest satisfaction and saving of labor.

In watering our plants, which is done by a force pump connected with a nozzel or rose, as needed. Finding a plant affected by the insect, we set it on the floor, take off the nozzel or rose, cover the end of the hose with the thumb, and divert a fine stream of water with all the force of the pump on the affected parts of the plant, and in less than a minute the insects will be all washed off the plants, it will even wash them out of the bark as in Medinella magnifica, &c.

NOTES AT THE ROSEDALE NURSERY, PHILADELPHIA.

BY CHRONICLER.

I visited this noted establishment the latter end of August last, and found Mr. Buist directing the construction of a new glasshouse, 125 feet long, and 24 feet wide, with span roof and broad front shelves around; a gangway, and a walled up pit in the middle. It will either be a great Azalea and Camellia storehouse, or a forcing house for winter cut flowers, all of which, as a skilful grower, Mr. Buist has for forty years been distinguished.

Among new stocks in the open ground, I saw a large bed of the *striped Tuberose*; the leaves and flower-stalk are striped with white and green, in equal parts, which makes the plant very ornamental. It blooms as freely, and is as fragrant as the old species. *Hydrangea paniculata grandiflora*, a new, stately and hardy deciduous shrub, was in bloom. The flower trusses are very large and beautiful, white, tinged with rose; a lovely acquisition to prolong the blossoms of the arboretum. Two new varieties of *Hibiscus sinensis* in bloom; the flowers are seven inches in diameter, from tip to tip of petals; one is shining scarlet, the other scarlet, splashed with white. As the Hibiscus is now largely bedded out in summer, and blooms from June to November, those two new varieties will make a dashing show. A new *Lagerstræmia* literally covered with its *white* blossoms, and far more showy than the pink and purple species, A bed of *Veronica alba*, the white blooms of which contrast beautifully with that of the blue species. A large plantation of the *Rosedale Arborvitæ*. I was told that none of the plants lost a leaf by the cold of the past two winters, while all the other varieties of Chinese Arborvitæ were much injured in foliage and habit. The *Rosedale* is the most graceful of all the Arborvitæs. There were several superb new evergreens. Among the greenhouse exotics there were very many new and highly ornamental species and varieties. Although familiar in this department, felt bewildered at seeing so many new and superb plants. The singular habits of some, and the splendid variegations of others, surpassed my expectation of a few years ago.

CULTIVATION OF DATURA ARBOREA.

BY THOS. F. WEBB.

The Datura arborea, sometimes called Brugmansia, is a rapid grower, with large foliage. There are several varieties. The one generally found in our greenhouses is called Datura Knightii; it has interesting double white funnel-shaped flowers, and very fragrant, which it bears profusely. The bloom is, however, of rather short duration, still they are worthy of a place in every greenhouse. Can be stowed away under the stage, or in any odd, dark corner during the winter months. They can be propagated from eyes. The whole of the last season's wood can be used as you would a grape vine, that is with half an inch of wood to each bud, which can be placed in small pots, or a number in shallow pans or boxes, as most convenient to the cultivator. If a gentle bottom heat is available, they will root much quicker. They must

be kept moist, but not wet. The young plants will do well during the winter, if a temperature of from 50° to 55° can be maintained. Early in spring they may be potted into four-inch pots, and started into growth in the hothouse; they will soon make rapid growth if assisted with bottom heat. From the time they are first potted, they must be constantly attended to in that respect. As soon as the roots have reached the sides of the pot, shift into larger size ones till they have reached fifteen or eighteen inches; large plants are required. If you wish to grow dwarf standards, put stakes to them, taking care to keep the stem perfectly upright, then the side shoots must be pinched off, leaving three or four at the top. When the plant has attained the height you wish—from two or three feet is a convenient height—and looks well, pinch out the top. After this is done, the three or four side shoots not rubbed off will grow fast, and are the foundation of the head. These shoots can each have their terminal bud pinched out in the same way as you did the top of the plant. After they are three or four inches long they will then throw out several shoots each, and quickly form a head. If any cross-growing shoots show themselves, cut them clean away, or any other shoots that would tend to crowd the plant. The main shoots must not be stopped after this, but allowed to grow till they produce flower buds; they had then better be removed to the coolest part of the house for a few days, previous to their removal to the greenhouse or conservatory, where they will continue to flower for a long time, filling the house with their powerful fragrance. They grow best in a compost loam, (sod cut from an old pasture) Jersey peat, and cow-dung about two parts of the first and equal parts of the latter. If "sod" from a pasture is cut and laid by until it is well rotted, it is then enriched with vegetable matter, and will grow anything. Plants of a succulent nature like the Datura will *grow better* if a portion of peat and cow dung, or leaf-mould is added. If the plants are to be placed on the lawn, or any other conspicuous place about the grounds, protect them as much as possible from the wind, which, as the foliage is large and brittle, is very liable to be broken. They may be planted out about the time the ordinary bedding subjects are put in their summer quarters, taking care to support them with stout stakes and neatly tied. They can either be plunged in their pots, or turned out.

Before frost appears, they must of course be taken up with a ball of earth, and packed closely under the stage (if room is an object) upon the ground, keeping them without water, and after they have dropped their leaves, they may be pruned top and root, then potted in fresh soil prepared as stated, slightly watered, placed in the back part of the hothouse or greenhouse until the buds commence to grow, then at once remove to the light.

In pruning the head cut in rather close to the stem, that is within two or three buds; you can then select the best placed ones that will make the handsomest head, cutting the others entirely away. All they will require this season is to stop any shoots that show a tendency to become more vigorous than their fellows.

The Acarus tellarius or Red Spider is the greatest pest, and care must be taken to frequently syringe the plants, more particularly the under-side of the leaves. They cannot exist here syringing is well attended to. Water is death to the Red Spider.

SPECIFIC HEAT OF PLANTS.

BY REV. L. J. TEMPLIN, KOKOMO, IND.

The question of the existence of internal specific heat in plants has elicited considerable of inquiry, and is certainly an interesting subject to every one interested in the phenomena of the vegetable world. A correct conclusion can be reached, only by a careful investigation of all the facts bearing on the subject. Mere theorizing, as well as a partial view of the facts, is very likely to lead to erroneous conclusions.

It is often observed, after the fall of a snow, that what falls against the trunk and roots of living trees soon melts away at every point of contact with the bark, leaving a hollow space between the snow and the tree. It is readily concluded that the flow of the sap and other internal functions of the living vegetable germinate so much heat that the surface of the tree is kept above the freezing point. But then we find that this thawing does not invariably take place after a snow fall. Sometimes a driving snow will beat against the side of a tree, and remain there for several days without any indications of thawing. How is this to be reconciled, with the phenomena noted above; or how can we account for the thawing in one case and not in all cases? Some have supposed this thawing was the heat of the sun falling against the trunk of the tree,

and being reflected back against the same, thus raising the temperature above the freezing point; but that this will not account for it in all cases is evident from the fact that the thawing is often observed where the sun's rays could not reach it, and, in fact, in the entire absence of sunshine. How then are these different phenomena to be explained? In order to obtain a satisfactory answer to this query, it is necessary to inquire into the real condition of the interior of the tree.

From the fall of the leaf in the fall of the year, till towards spring, there is comparatively less sap in the tree than during the growing season; this sap is also less active than at other seasons of the year. This sap, however, is always in circulation during the winter till it has reached a temperature several degrees below the freezing point. The circulation of the sap and all similar functions of the vegetable economy, involve the liberation of a greater or less amount of heat. It is to be supposed that the sap coming up from the deeper sub-soil, carries with it more or less heat. But taking these and all other sources of internal heat,—if there be any other—experiments, long continued under favorable conditions, prove the interior of the tree does not average more than one-half of one degree above the temperature of the atmosphere surrounding such trees. If this is true, how are we to account for the melting of the snow, as mentioned above, when the temperature of the air is below the freezing point?

This leads us to notice another curious phenomenon in regard to the internal temperature of the tree. While the average temperature of the interior of the tree varies but little from that of the ambient air, the rise and fall of the temperature do not coincide in the two by a difference of several hours. If the atmosphere attains its maximum heat at 2 o'clock P. M., the interior of a tree will reach the same point from four to eight hours later, following in almost exactly the same circuit of that of the air. I think we find here an explanation of the melting of snow on trees when the ambient air is below the freezing point. Snow frequently, if not generally, falls when the air is above 32° fah.; and if it has been in this state for some hours, the condition of the tree would probably be the same, and even though the temperature of the air fall immediately below that point, the tree, as shown above, will be some hours longer in reaching the same state; and if the depth of the snow is sufficient to exclude the coldness of the air, the tree may remain at a temperature sufficiently high to melt the snow in contact with its surface much longer than it would if it had been exposed at once to the cooling effects of the colder air.

These considerations will, I think, reconcile the apparent contradictions between the conclusions of those who have noted the internal and those who have observed only the external thermal condition of the tree. The conclusion would follow that the heat given off by the tree is not sensibly more than it had previously absorbed from internal sources. But inasmuch as this heat is given off by radiation, beginning when the heat of the sun begins to decrease, and continuing till the air is again warmed by the sun, it has a decidedly modifying influence on the temperature of the atmosphere. A forest or grove may then be regarded as a regulator of the temperature of the surrounding medium. It would also seem reasonable that the presence or absence of forests should have a decided influence on the climate of a country. A practical conclusion is, that by the employment of groves and windbreaks, every horticulturist and farmer may, within certain limits, contract, or at least modify, the temperature of his own locality.

NOTE ON ADIANTUM FARLEYENSE, AND BEGONIA SANGUINEA.

BY R. BUIST, SR., ROSEDALE, PHILA.

Adiantum Farleyense is a native of Trinidad; was found on the estate of Farley Hall, thereby its name; was sent to England by a ship from Barbadoes. My plant, now two feet high, and two and a half feet wide, came from its native locality in Trinidad, and has not the least affinity to *A. tenerum*, which is not, I believe, found on the same island.

Begonia Sanguinea takes its name from the blood-colored leaves. The flowers are pure white. Was introduced about forty years ago from Brazil. It is a very attractive window-plant, and should be in every collection, large or small.

ORCHIDÆ.

BY MR. JAMES TAPLIN, MANAGER TO GEO. SUCH, ESQ., SOUTH AMBOY, N. J.

CATTLEYA MOSSIÆ.—This is one of the most showy and easily grown in this splendid family of plants, and a variety which should be in every collection; being comparatively cheap, any amatuer need not hesitate about obtaining it.

The Cattleyas being natives of such countries as Brazil and New Grenada, do not require such high temperature as the East Indian varieties of Orchidæ, which not only make the house they occupy more enjoyable, but brings them under the management of any one with a small warm greenhouse;—in fact any house in which the temperature does not fall below 50° in winter, can be used for this purpose, if they are kept dry and not exposed to cold drafts. We grow them in a house kept about 60° in cold weather, but the growth is made during the hot weather, so that a lower temperature will not injure the plants.

The plants will grow and flower well on blocks of wood suspended from the roof, but the flowers are seldom so large as when grown in pots, and in a house kept at a minimum temperature, care need be taken that the plants are not less than a foot from the glass, or they will suffer from cold on very severe nights. I prefer to grow them in pots or pans, two-thirds filled with drainage, and the stem parts peat-fibered, the plants being well raised above the surface, and of course no part of the pseudo-bulb bruised. In watering care must be taken not to let water in hearts of young growth, or they will probably rot. It is a mistake to allow these plants to be dust-dry at any time, for there is often more root growth in winter than in summer; in fact never allow them to shrivel from want of moisture, for it must be remembered that the Cattleyas are all evergreens, and lost leaves are never renewed on the same bulbs.

There are many varieties among this species, both in flower and foliage; in fact in a hundred plants, scarcely any two will be exactly alike, which adds another charm to any one getting up and adding to their collection.

This plant is not troubled much by insects; a small white scale is sometimes found on it, but can be removed with a sponge on its first appearance, or it leaves small indented spots on the foliage.

TOUCHING LAWNS—THEIR GRADES AND THE GRASSES.

BY F. R. ELLIOTT, CLEVELAND, OHIO.

Possibly not a word new or explanatory of how to make, how to grade, the variety of seed, and quantity to sow, etc., touching what we once called grass-plots all throughout the country, but what now generally receive, correctly and appropriately, the name of lawns; but new readers come before all magazines of intelligence, for there are all the time new creators of home grounds, upon which these lawns are situated, and as they cannot all expect to be read up in the art or knowledge, however many times they may have been repeated, it may not be out of place for an outsider to give yet another hint and word touching the subject, however capably the editor of the *Gardener's Monthly* has oft performed the task.

I am induced to this from two causes—one the kindly courteous, truthful words in the "hints for September" of the *Monthly* of same month, and the second from observation of some half score or more of lawns made last spring, and now in the course of construction. In the "hints" I would refer to the paragraph which is embraced on page 257, from "In traveling" to the sixth line, and word "example" on 258 And I thank you for another speaking of truth, although you may have rubbed as hard against the sensitiveness and egotism of ignorance as I have done. There is a truth in the fact that only in the suburbs and surroundings of cities, where intelligent landscape gardeners reside, do we find true and appropriate arrangements of ground, tree and plant. But thanks to the growing intelligence of our people, and the grand desire of each one to make his home grounds features of beauty as well as comfort and profit with economy, we are yearly adding to the numbers in which true taste is at least attempted to be developed in the grade, line of path, and planting of tree, shrubs and flowers, surrounding the home family house.

Money and wealth, and expense of after care, are not strictly a part and parcel of tasteful make up of a homestead's household surroundings. It is more in the careful study before doing the work: first of where the house should stand in order, according to its plan, to give the rooms most to be used, the best light, and best and pleasantest views; second, how the paths leading to and from the doors can be made graceful and easy, (for no person will ever walk naturally a straight line of one hundred feet) and at the time just where the main items of daily necessary travel have to be followed. I acknowledge this is a thought demanding no little study, but it is a feature of every day life, that in the first fitting of one's home-grounds should be considered. The next in point is the establishment of the grade, which should always be, upon

what we term level ground on the average frontage of suburban country home grounds, so toned that while it rises from the street line, it does so, hiding mainly the portion of the pathways from those however useful and necessary to the grounds, and no more a feature of beauty thereto than is the chimney to the house. They are not the items in the architecture of the work that belongs to the study and application of a fine taste in the formation, saving, and except that they are necessities which, when shown, exhibit the daily walks and wants of grounds, as do the chimneys' positions, and uses of the rooms in the house.

But fearing that I may be outliving the reader's patience, let me just say a word touching first the fact that a good deep soil, thoroughly trenched eighteen inches deep, raked down, with every stone removed, and seeded per acre with five bushels of what is generally termed lawn grass seed. The mixture I would make should be *twenty-eight* pounds of clean Kentucky Blue Grass—*the same* of Red Top—*Twelve* pounds of white clover and *ten* pounds of Creeping Bent Grass to the acre. In sowing this seed do it three several times, *i. e.*, divide it into three parcels. Sow first east and west, then rake the ground lightly; then sow north and south, rake again lightly, not over half an inch deep, with a light steel rake, then sow again the last third of the seed east and west, and roll it—rake no more, but roll it, first east and west, then north and south, and then again east and west.

I have made many a good lawn from this system or course of practice, and in sixty days from the seeding in spring, have had the lawn mower put on, and thirty days thereafter croquet playing has been a feature upon the lawn.

I never permit any of the coarse grasses, such as Rye Grass, Sweet Vernal Grass or Timothy.

GARDENS OF MRS. PACKER, WASHINGTON HEIGHTS, N. Y.

BY. R. F. S., LENNOX, MASS.

Some eight weeks ago I was in the vicinity of New York and Brooklyn, and my attention was called to an article which appeared in two or three of the daily press of both these cities about Scottish gardening, which I *enclose*, the *article* for your inspection.

And to avail myself of the opportunity, I went to see *the grounds* of Mrs. Packer, and well was it worthy of a visit at the time I was there—everything gay indeed. The flower-garden, graperies and plant-houses, all in splendid *order;* and they *alone* can speak *volumes* in praise of Mr. Campbell, Mrs. Packer's able and intelligent gardener.

There are to be seen in the flower-garden and ribbon-borders, all styles of planting, such as scroll serpentine lines, pannels, angles and straight lines, and a variety of every conceivable description, besides a series of Cerural beds, planted so as to form a maltese cross, &c. The pannels and ribbon borders were simply grand at the time of my visit, all representing a splendid piece of mossaic. I may also say that something new is the style of planting - entirely different from the old way of planting borders and beds, with the same style year after year.

The plants used for bedding out for the above were such gay subjects, as all the finest Coleus, Achyranthus, Alternantheras, Cineraria maratima, Centaureas of sorts, all sorts of scarlet and variegated Zonal Pelargoniums, Phlox Drumondii of varieties, Dracænas Verbenas, Argeratum Amaranthus of sorts, with Raciners for the back ground, with Salvias and Cannas interspersed to fill up. There is also a fine herbaceous border and one of roses, all in fine bloom. The roses and clumps of Gladiolus made splendid contrast. I may say that nearly all the Cerural beds were edged or margined with Lobelias (blue), Sedems of sorts, Golden Feather, variegated Sweet Alyssum, &c.

In the graperies I have found some excellent examples of vine growing, some canes measuring 30 to 40 feet - 2½ to 3 inches in circumference, and only planted out on the 15th of May, 1873, and bearing some nice bunches of fruit, especially the Golden Champion, Mrs. Pince, Black Muscat, White Tokay, Royal Ascot and Black Hamburg, all fine examples of fruit culture, considering the age of the vines.

In all the plant-houses, I have met some noble specimens of such good subjects as Camellias, loaded down with buds; Azalias, Gardenias, Daphnes, Crotons, Standard Heliotrope, Begonias, Dendrobiums, Justicia, Poinsettas, by the thousand; Dracænes of sorts, and all such plants as are suitable for winter work, as Mr. Campbell tells me there is great demand for such. I have also noticed some huge plants of Marshal Neil, Gloire de Dijon, Safrano, Bon Seline, (the *first I ever saw trained as such*) Lamarque, planted out and trained along the rafters, which must

yield an enormous quant'ty of rose buds for late flowers.

I have also noticed a large quantity of vines, figs, peaches and nectarines in pots. Mr. Campbell uses pot-vines to advantage for table decoration. I may add that the whole place has been renewed under Mr. C.'s time, and well might any one who employs a first rate gardener, be satisfied with such a one, for everything under his fostering care bears the mark of the *practical* and careful cultivator.

[The following is the extract referred to by our correspondent :]

"We extract the following from a contemporary as an evidence of the prestige which Scotland has attained in the science of landscape gardening. We may state that the gardener referred to is a Mr. Campbell, and from the early training which he received, he is evidently fit to uphold the honor of his country. He served his apprenticeship at Red Castle, Rosshire, and since then has successively filled situations at Bratin Castle, Longleat, Emilee, Trentham Hall, and Alton Towers, places all famous for the excellence of their horticultural arrangements. In taking a ramble through Brooklyn and its suburbs, I was pleasantly surprised to note the great improvements which, within the last two years, have taken place in ornamental and landscape gardening. I have, in my travels, visited the most noted private grounds in the Old World and well pleased am I to find that we are rapidly approaching the perfection of foliage and plants which is attained there. Among the many places that came under my notice I must mention that of Mrs. Packer, on the Heights. There the foliage and plants are massed so skilfully, and the colors so artistically arranged, that it is really quite a treat to see, and well worth a visit from all lovers of horticulture. I may observe that the gardener to this establishment is from Scotland, the home of the most eminent horticulturists, and he has shown, by his rare taste and judgment, that he is no mean representative of his country or his profession."

NOTES ON THE SEASON IN WESTERN PENNSYLVANIA.

BY A. H., MEADVILLE, PENNA.

Autumn again posts the books of Summer & Co., and shows us the net results of the year.

A summary of the weather gives a backward spring, preceded by a very severe winter, and followed by a summer with nights cool enough to produce light frosts even in the months of July and August. Pomologically we have had strawberries and blackberries usually fine and abundant.

Peaches—Trees injured by winter—no fruit.

Apples—Small crop, though some orchards have yielded well.

Pears—Good crop,—the number of bearing trees annually increasing.

Blight.—This has been more or less prevalent in all our orchards, prolonging the mooted question whether freezing or fungus is the cause of the injury, and whether fungoid development is a primary or secondary agent in the destruction of the trees. Without settled conviction on the point, I may add that I, last year, noticed fungoid indications in some trees that partially blighted this season, and also in others which have not blighted. The fungus probably takes several years for its full development.

Tree Wash.—I have been using a mixture of sulphur, lime and soot, as a wash, with good results on both peach and pear trees, making the application once in the spring and again in October.

The growth of the trees has been good ; the exterior portions are healthy and smooth ; although from my limited experience, I am not able to assert that the application is reliable as a protection from attacts of fungus.

A Winter Nelis tree that has heretofore been very profuse in its flowers and limited in its product, this year gave us four bushels of fruit of the best quality. This pear under right conditions is much coated with russet, and the more of this color it acquires the higher flavored it is.

I am indebted to Mr. F. R. Miller of Sugargrove, Pa., for a box of his handsome seedling apples, raised from seeds of the Talman Sweet. The specimens show nature's law of variety, some being sweet and some sour in taste, and some yellow and some red in point of color. The kind he has named Menaan, described in Downing's, is oily smooth ; has the light texture, and clear color and beauty of a sweet Bough, and only lacks juicy sprightliness to be a first class fruit.

NATIVE GRAPES.

Christine, Israella and Delaware, all ripened this year ahead of Concord. I took the trouble to thin out my Delawares, and the size of the fruit was perceptibly improved by it. Semi-transparent when the sunlight fell upon the clusters, they glowed among the leaves bright as cornell berries, objects of beauty as well as of luxury. Maxatawny did a little better than last year, yet did not fully mature ; nor did Autuchon.

FOREIGN GRAPES.

Golden Champion fruited with me this season ; it has been somewhat over-praised. The bunch and berry are large, and the fruit, though a little firm, is sweet, and ripens in good season ; but

the color is cloudy, and it does not retain its plump freshness very long after ripening.

Duc de Malakoff, classed in the catalogues as an early variety of Sweetwater, proved with me later than it or the Chasselas. It produces a long bunch, well shouldered, and sets its fruit well and evenly; the berries arranged so as to require little or no thinning, and being of fair, not large size. It is an amber colored fruit, and improves by hanging till the end of the season.

Fintindo, which I imported from Paris two years ago, is so much like Black Hamburg that I take it to be some variety of it.

Chasselas Vibert.—A vine purchased at Rochester for this proved a Frontignan.

General Della Marmora.—A vine I obtained for this, though protected, was somewhat injured by the cold of last winter. Bunch and berry were small, but the fruit (amber-colored) was delicate, and of fine flavor.

Seedlings.—A seedling of the Golden Hamburg fruited with me this season for the first time. If the parent is a Hybrid, as is claimed, the result shows that the hybrids will sometimes have their qualities reproduced in seedlings, for the color, size, quality and time of maturity with this seedling are the same as that of the parent vine. The leaf is more corrugated or wrinkled, and time may show other differences.

For cold graperies we want early ripening, good grapes that will mature when the weather is warm, and hang well. Foster's Seedling is one of these. We ought to have a Muscat of Alexandria that will ripen in September. Though beginning late, I hope to experiment a little in this direction in the future.

ADVANTAGES OF HOT WATER OVER STEAM.

BY X. Y. Z.

Mr. Allen, in the *Gardener's Monthly* for October, asks "Why has heating by steam been ignored by florists?" I reply, because they have found in hot water a better agent for conveying heat. Steam for warming plant houses was in use prior to the discovery in 1777, of the adaptability of hot water as a means of heating.

Steam, from its gasiform nature, parts with its heat quickly, and unless the fires are kept up the water in the boiler ceases to boil, the steam falls to a lower pressure, and the pipes rapidly get cold; on the contrary, hot water from its density parts with its heat more slowly, and continues to give off heat long after the withdrawal of fire. No heat can be received from a steam apparatus until the water has passed the boiling point, and made steam enough to cause a pressure necessary to drive the air out of the pipes. Hot water commences to circulate immediately after the application of fire, and consequently gives heat quicker than steam. I am aware that with steam the temperature of a house can be raised from a low to a high degree in less time, but unless great care is used in managing the fire, it will as rapidly descend again; on the contrary, hot water will retain the heat imparted, and keep the temperature at a more even degree. The highest degree of heat that can be obtained in the boiler of a steam apparatus is 212, which can be maintained at a long distance from the same, giving thereby an even regular temperature. When the water in the boiler of a hot water apparatus has reached the boiling point, the return pipes will be found nearly as warm as the flow, which causes also an even, regular temperature.

I doubt if Mr. Allen can fix (with as much certainty his steam boiler as a hot water boiler) his boiler to run from nine or ten o'clock till seven or eight the next morning without attention during that time, as the boiler must be fed in order to replace the waste caused by the production of steam, which cannot be returned to the boiler because of the "back pressure," which would prevent the circulation necessary to a steam apparatus. The expense of a steam apparatus at the outset is heavier than a hot water apparatus, but the running expenses will be no heavier probably. Having steam heat had nothing to do with Mr. Allen losing no plants by freezing; hundreds of florists lost none, though they used either hot water or flues. Heat given by vapor or smoke differs in nothing. The "burnt heat" given by flues is caused by the escape of noxious gases, which are injurious to plant life.

Steam and hot water do away with the necessity of smoke passing through the houses; this, combined with the even, regular temperature secured, give to the house an atmosphere in which plants, other things being equal, cannot fail to thrive.

If Mr. Allen did not keep his houses sprinkled, the "moist, balmy atmosphere" which he ascribed to steam heat would soon be changed to an atmosphere exactly contrary.

EDITORIAL.

"OUR CHROMO."

This is the heading very prominent in newspapers just now; and "just look at our premiums for new subscribers" is nearly as common. We do not know but if ours were an agricultural instead of a horticultural one that we should object. The sole end of agriculture is to make money,—to get the largest results from the land at the lowest possible cost. It is profit all round.

True, Horticulture occupies different ground. Cash, though of some consideration, is secondary. The most pleasure from the land, stands before mere profit. We wish to meet our readers wholly on this ground.

It is a source of great satisfaction to the editor that the great success of the *Gardener's Monthly* has been by its merits alone on the one hand, and by the sincere love of horticulture on the part of many friends on the other, which has led them to overlook the faults of the editor and of the publisher, in their desire to uphold a horticultural magazine. True horticulturists are so scattered here and there over the land, that no system of advertising will reach them. Our large subscription list has been mainly the result of one friend telling his neighbor, and of all doing what they can for us. Probably no magazine has given more valuable matter; and yet the whole of this has been the voluntary contribution of good friends in most cases, without any begging on the part of the editor.

The editor has never felt that he desired the position as a matter of profit; the salary he receives is far less than if he devoted his time to other pursuits. His main idea has ever been to aid, so far as his humble efforts may, in sustaining a pure horticultural representative in American literature; and so long as he shall continue to be supported by his correspondents, and the publisher aided in extending his subscription list as he has been in the past, he hopes to be spared to serve horticulture a few years longer, as he has already done for fifteen years at the head of the *Gardener's Monthly*.

OUR INDEX.

For the past few years many subscribers while remitting their own subscription have kindly endeavored to send other subscribers' money with their own. Our index will be a capital aid in this friendly canvass. It shows what the *Monthly* gives for the money. We doubt whether so much is given for $2.00 by any paper in the world; and if there is ever to be a world's fair in which a premium is to be awarded for the *cheapest magazine*, we are inclined to compete for that premium.

TRAVELING RECOLLECTIONS, NO. 2.

Where the Shenandoah River makes a junction with the Potomac is situated Harper's Ferry, occupying the little neck between the two.

We do not know that as a rule editors are particularly anxious to imitate the bird who was fond of the early worm, but the knowledge that we were to start on our journey through Virginia at half past eight o'clock, brought out some from their sleeping berths before the advent of the sun. Much has been said of the beauty of this site, but it by no means deserves the superlative terms so commonly bestowed on it. Beautiful it certainly is, but hundreds of places in the Union—even Virginia itself can furnish better specimens of beauty. The remains of the National Armory, destroyed during the rebellion, interests the botanist chiefly by the splendid specimens of our beautiful American fern, Pellœa atropurpurea, which are gathered from the walls; and the low green sward between portions of the ruins is completely filled with the soft clover-like stems of the yellow milfoil, Medicagolupulina, an English plant which has here found itself a pleasant home.

Several gentlemen of the town very kindly took us to the points of interest, but these were chiefly in relation to the military history of the country, and furnished little of value for our pages. Fruit trees were growing well and bearing abundantly; but so far as we could guess in our few hours ramble, there was nothing of special interest to our horticulturists. The soil and climate, however, were evidently favorable to gardening, and, except of course, the steep rocky places, as good for a center of agricultural excellence as many places which have earned far better names. Still a place

which has in the past depended for so much of its prosperity on government help for its prosperity, can hardily be expected in so short a time since losing it, to learn to depend on its own resources. The colored universities are now located here, and some of the old time government buildings are devoted to the purpose. They have a good opportunity here to display some horticultural taste, but we do not know how much means or disposition there may be to take advantage of it.

A short ride brought us to Charleston, the capitol of the same county (Jefferson) in which is situated Harper's Ferry, and the visitor is sure to find added to the information, "Charleston—the place where John Brown was hung." The people of this county seem very proud, and we think with justice, of the excellence of their farming productions. In this respect there seems quite a rivalry between it and the next county, Frederick, in which the celebrated Winchester is situated. The farms, however, are all so large that under the new regime, it is difficult to manage them. Now when personal superintendence is a requisite to successful farming, the old system, which is remarkably similar to English gentleman farming, does not work well. It seemed a pity to see so much soil capable of yielding such immense crops of cereals, devoted to mere stock raising, simply because under the new system of things, the farms are too large to be handled for any other purposes.

Following the line to Cedar Creek we came to Harrisonburg, which we found in a very thriving condition. Tasteful residences, evidently built within a comparatively recent period, were numerous, and much disposition to cultivate a horticultural taste was evident. There was not that neat and cultivated gardening, which since the introduction of the hand lawn mower, so many similar towns in the North exhibit; but still considering all things, the Harrisonburgers may be by no means ashamed for strangers to see what they are doing in the gardening line.

The railroad connections being not yet complete, we took from here stages to Staunton, a distance of twenty-five miles, and here the English style of doing up things was again apparent in the magnificent turnpike over which we were driven. The tolls are said to be six cents a mile, but this is cheap when we consider the less wear and tear of horse-flesh, gears, and vehicles in general over our ordinary roads. We felt that no better lesson would be given many of our northern road officers, than to send them down to look at a piece like this. At Staunton, Major Hodgekiss, on the part of the Chesapeake and Ohio Railroad, took charge of the party; and as there was no hotel capable of accommodating so large a party at Staunton, the Company took us over the Blue Ridge Mountains easterly to Charlottesburg, the seat of the Virginia University, and near the tomb of Jefferson, where, amidst the beauties of crape myrtle, and sweet scented magnolias, we retired for the night. Early we started on our return trip, and breakfasted in the Blue Ridge, where, for the first time, many of our party had the opportunity of seeing the rare Pinus pungens or Table Mountain Pine, as it was once called, growing in its native state. It is of course now known that it is found all along the Blue Ridge region, from northern Pennsylvania down to North Carolina. From here we crossed the Shenandoah valley at right angles from east to west, affording us an excellent opportunity to judge of the character and capabilities of the country, especially as we had the kind company of Mr. Fisk and other leading officers of the road, who pointed out all the points of interest along the route.

It is impossible to conceive of any country better adapted to horticultural and agricultural operations than this well wooded and well watered one; with game of all kinds and fish in abundance; with exhaustless supplies of coal and other minerals; with—not the mere degraded granite of other sections, but a favored soil made of rich limestone and clay, and yet only here and there any signs of human industry. Now and then a farm house with shade trees, well cared for grounds, thrifty orchards, and good fences; but in general the whole make up had a dilapidated look which plainly told that the owners were much poorer than their forefathers who had settled there. Our party were all overcome with the genuine hospitality and good feeling with which we were everywhere received in this regard, and felt that they would aid and assist this good people in any way in their power to develop their prosperity. How to do this was a free subject of discussion at all times. They seemed to think that there was a good field for northern men to come down among them and bring their capital; while our party insisted that capital never led, but aided industry, and that these southern friends already had if they did but know it, as good material in good heads and

arms, to turn these abundant materials into riches, as any set of northern men ever had. So we traveled,—now discussing what might be made of the rich country, now enjoying its rich beauty, till we found ourselves over the line of Old Virginia into the New, and in the celebrated Greenbriar county, along the river of which name our railroad took course. This river is one of the sources of the Kanawha, which extends wholly across the State, emptying into the Ohio at Point Pleasant opposite Gallipolis in Ohio. On the boundary between the two States is *White Sulphur Springs*, where we rested for the night.

Here the grounds are beautifully laid out, and though the keeping up is not in the style of the ground about Saratoga and other famous places, still it is better than many places of greater pretensions. The accommodations are very good, and when the price is considered in comparison with others—$3.50 per day—if one wants to take a quiet draught of beauteous nature, and at the same time flutter among society's butterflies and drink the nauseous stuff called mineral waters, we don't know of a better place to go to than the White Sulphur Springs. As we pass on to the Bull-pasture, Cow-pasture and Calf-pasture rivers, with other streams of like peculiar titles, we gradually come to scenery which for luxurious beauty excels anything to be seen in railroad traveling in any part of the north. The Greenbriar, after meeting the Bluestone, becomes the "New" River, which is simply a deep canon cut through the everlasting hills, sometimes twelve hundred feet deep, and extending for near seventy-five miles. The waters rush through with tremendous rapidity, often leaping over rocks and tumbling over precipices to twenty feet below. The sides of the rock, formed by the gushing waters, are clothed with trumpet flowers and Virginia creepers; Smilax and grape vines in tangled masses often falling hundreds of feet deep; while wherever a little earth would hold together on a small table rock, Tulip Trees, White Oak, and other forest trees of gigantic dimensions, grew up against the perpendicular sides as if painted on immense sheets of canvas by supernatural hands. There are plenty of places in America where the water flows as rapidly and in as great volume; there are others where the attending rocks are as high, and as romantically arranged; as rich and varied a vegetation line other river banks; but nowhere are all combined in the same glorious proportions as here

If for a trip of mere pleasure alone we wanted a railroad ride, it should always be along the Chesapeake and Ohio Railroad through this section of the country; and if on a matter of business we had to leave our homes, it would not be at all lost if a few more miles in a round about way were spent to go over this line. But we have some seven thousand miles to take our readers yet, and must not tarry among these fairy scenes.

We pass, as we rush along, dense forests in which we detect abundance of Magnolia acuminata the cucumber tree, M. tripetela, and the rare M. Frazeri, or auriculata of some botanists, which we think, from what we saw, is like the Pinus pungens much more common than old botanists supposed it to be. Along the river banks Halesia tetraptera, the snowdrop tree, occurred in great abundance; and on the forest trees, especially on the Yellow Elm (*Ulmus fulva*) immense quantities of the Mistleto (*Phoradendron flavescens*) was seen. Emerging from the canon we strike the Gauley River, when commences the Kanawha River, which coursing through a rich and tolerably well cultivated agricultural country, brings us to Charleston, the capital of West Virginia, and a remarkably prosperous and thriving place. Here we were invited to meet the leading citizens of the city at the princely residence of Dr. Henry S. Walker, where, until the early hours of the morning, some discussed matters of science and art, the progress of the nation, the merits of the creature comforts brought together for our enjoyment; and some of the younger ones joined the Charleston ladies in discussing the sweet sounds from the orchestra and all the poetry of motion which so often results therefrom.

Bright and early, however, on a steamboat under the guidence of Dr. Hale, one of the most energetic of Charleston's citizens, we were steaming up the Kanawha to examine the celebrated salt works, and there saw how the material by steam power was pumped up out of the briny deep over a thousand feet below the surface of the earth; how all which was done, and finally ended in the salt which saves us, thousands of persons have already read in the correspondence of the thirty papers to which our traveling party were attached. A hundred miles ride takes us through a wonderful coal country through Barboursville to the terminus of the road at Huntington, where we take steamer for Cincinnati. At Huntington we were treated to a daylight

reception—a sort of matinee by the ladies of the town; and after a splendid collation, were taken in carriages to gardens, grounds, and places of interest in the vicinity. Although the town is but a couple of years old, it already comprises about a couple of thousand of inhabitants, with streets nicely graded,—in a few cases shade trees—with flowers and shrubbery set out in most of them. Our dining-hall was profusely decorated with bouquets and designs of cut flowers, to our utter astonishment, that so new a place should raise so much, until a good lady confided to us the secret that they were brought from a distant and older settled town, especially to do honor to us on our arrival. It will not, however, be long before Huntington will have horticulture of its own that other older towns will envy, or we are much mistaken in the culture of these good people.

This rapid sketch of a week in Virginia of course can tell of but a grain in the ocean of great experience gathered in that time. We can but outline the course. From time to time, as occasion arises, our readers shall profit by what the editor gained.

SCRAPS AND QUERIES.

EFFECTS OF CLIMATE ON THE HARDINESS OF TREES.—*J. G., Hockley, Harris County, Texas*, writes: "Would you inform me through the *Monthly* whether trees nursery grown at the north, if varieties adapted to our climate, will succeed equally well with the same varieties raised here? To put the question more definitely say 100 Bartlett Pears, and 100 Crawford's Early Peach, of northern nursery growth, and a like number same varieties southern raised, both lots being about equal in size and condition when planted, and their subsequent treatment being the same, will the southern-raised lot ultimately be more of a success than the northern?"

[This is a question which would be best settled by observation on the effect of climate on northern trees in the South. It is quite likely there is some difference one way or another, according to the article referred to, some things doing better when home raised, and others doing worse. It is so here in Pennsylvania in agricultural seed raising. Northern raised pears, for instance, do better when sown in Pennsylvania than pears Pennsylvania raised, while a Pennsylvania raised bush bean is considerably better for home use, than one brought from a more northern region.

In seedling pears, we, in southern Pennsylvania, find northern raised seedlings much better adapted to Pennsylvania soil and climate than our own; while on the other hand, southern peach stones make better trees in Pennsylvania than northern ones. Thus we see that there is no general law to be laid down to be applied to every description of plant.

Of the two kinds named in our correspondent's letter, without knowing the facts from general observation, we should be induced to "guess" that a northern raised pear would be better than a southern raised one, while a southern peach would be at least as good, if not better.]

RAPID POTTING.—Mr. Chitty sends us samples of what he regards as good potting against rapid potting, in the shape of a dozen Verbenas. They are good enough to satisfy the most fastidious cultivator.

In connection with this subject, we have an article from Mr. Henderson in reply to Mr. Chitty's last, which shall appear next month.

THE CONCORD GOING BACKWARDS.—A correspondent calls our attention to an item in the *American Agriculturist*, page 423, in which a writer spoke of the Concord "going back." Our correspondent thinks it is not right for an editor to let such a statement go without suggestion or comment, as in view of the universal success of the Concord, it is more than likely some local and temporary circumstance influenced the ill success. We are almost inclined to agree with our correspondent, only when we remember how

often we, ourselves, let our writers have their say unchallenged, we might be centuring our own selves. Still we agree with our correspondent, that whether it is the *Agriculturist* or the *Gardener's Monthly*, these little matters ought to have more attention than they receive.

FERNS.—Editor of the *Gardener's Monthly*. In your number for November, J. D., of Paterson, N. J., asks who can furnish native ferns, &c. As I have been some time engaged in making a collection of native ferns, and have become much interested in them, I shall be glad to render him any assistance I can, if he will send me his address. I will furnish him a very complete list of American ferns, prepared by Mr. William Edward, and will mark on it those which I can furnish.

I have been able to find no nurseryman who had anything like a complete collection, although I have made diligent search in several large cities. Mrs. Richie, corner of America and Oxford Streets, Philadelphia, has by far the best collection which I have found. I have made collections myself at Chestnut Hill, and on the banks of Wissahickon; at the Delaware Water Gap; in the chasm of the Ausable River; at Newport, Vt.; in Stanstead Co., Canada; Montreal and Quebec, and at many places in Massachusetts. I found the greatest variety in one spot at Derby line, between Vermont and Canada.

There are four ferns for which I have made diligent search in vain. Can any of your readers put me in the way of getting them, viz: Asplenium pinnatifidum, Asplenium ebenoides, Aspidium fragrans and Schizœa pusilla. The first two grow in Pennsylvania, the third in Canada and White Mountain region, and the last in the pine barrens of New Jersey. Perhaps "J. D." can send me a sample of the last.

There have been received at the Botanic Gardens in Cambridge, some very fine Pelleas or Platylomas and Gymnograms from California, and Mr. George Such of South Amboy has some of them for sale. Yours respectfully,

J. WARREN MERRILL,
Cambridgeport, Mass.

LUTHER TUCKER, the founder of the *Horticulturist* and *Country Gentleman*, lately deceased.

By courtesy of the present publisher of the *Country Gentleman*, we have an excellent portrait of our deceased friend.

A HORTICULTURAL LIBRARY.—There is so much difficulty in knowing what Garden books have been published, that those who are forming a Garden Library are always inquiring what and where to get? We have before us a light catalogue published by Mr. Robinson, Editor of the *London Garden*, which tells us more than ever we knew. The prices are affixed. It can be had gratis by writing to the office of the *Garden*.

LIVE FENCE POSTS.—*J. B. G., Catasauqua, Pa.*, writes:—"Your opinion is desired on the subject of planting *Yellow Locust Trees* as a substitute of posts to build a fence along a public road leading through a farm—the planting to be the same distance that the fence posts would be set in the ground. Would Locust do? If you may know of some other kind of trees that would answer that purpose, and prove more valuable than the Locust, I would be much obliged for such information.

[We are opposed to trees along fence rows. As they grow the roots extend an enormous way. We have seen ground for seventy feet away from the trunks of the trees almost impoverished by the roots taking most of the nutriment from the growing crops. For this reason alone we should oppose live fence posts.

Then for "live" fence posts we have to wait a long time for the tree to grow before it is capable of standing as a post, for the sway of a weak tree by the wind racks the rails out of place. Then if we employ fast growing trees they soon decay. Lombardy Poplars last in our climate little over thirty years. We wait for the post to grow ten or fifteen years, and in another fifteen years it is rotten. We may as well have "dead" posts of good lumber at once. It is an old idea. We saw but one,—it was twenty years since. It is gone now, and a post and rail fence is in its place. We fancy the experiment was a failure, or the owner would not have gone back to the old style. We do not know of any one who recommended it that has tried it himself. The idea *seems* a good one, and we suspect it is recommended on the merits of the idea rather than the merits of the facts.]

RELATIVE AGE OF TREES.—A Philadelphia correspondent says: Excuse the liberty I take of troubling you with a question, but a friend of mine has had the question propounded to him. "Why do the *Elm* and other trees live longer

in Europe than America?" I have looked in Michaux and Loudon's Arboretum, and find no comparative statement concerning the relative age of trees in the two countries, and I thought I would take the liberty of asking you to enlighten us in the matter. His impression, as well as my own, is that if the same care was taken to preserve trees here as in Europe and in England especially, there would be little difference in their ages in the two places, but if it will not be too much trouble for you to give me your views and information in the matter, I will esteem it a great favor."

[We believe that no English tree will live in this climate much over two hundred years—one hundred years bringing it to perfection, and another allowed for its decline. There may be exceptions. The oak which for "a thousand years endured the battle and the breeze," did not endure it in America. The English oaks planted by John Bartram are already dead. Care will make no difference. It is climate.]

NEW AND RARE FRUITS.

THE LORD PALMERSTON PEACH.—A specimen, one of seven grown this season on a young orchard house tree in a 12-inch pot, at Messrs. Rivers' & Sons' Nursery at Sawbridgeworth, measured twelve and a quarter inches in circumference, and was richly flavored. The Lord Palmerston Peach was raised by Mr. Rivers, and is thus described by Dr. Hogg in the third edition of the *Fruit Manual:* "Fruit large; skin of a rather pale color, having only a little red on the side next the sun; flesh remarkably firm, and richly flavored; glands very small, kidney-shaped; flowers large."

It is a seedling, raised from another seedling from Pavie de Pompone. Its flesh is deeply stained with red at the stone, and is slightly adherent. For orchard house culture it appears to be remarkably well adapted, and it has proved to be one of the best, as it is one of the largest, late Peaches in cultivation.—*Gard's Chronicle.*

THE STARK APPLE.—A correspondent from Louisiana, Missouri, submits the following inquiries: "I would be much obliged to you for what you know of the Stark Apple. How well does it bear? How late does it keep, etc.? What is the quality, etc.? Is it profitable as a market shipping sort? How will it compare with Ben. Davis for profit? It is a hardy tree in Nursery and a splendid grower, which is about all I know of it now. The Lawson promises well." The Stark has not been introduced to Eastern orchards, and we have not met with it to any extent in our western travels. If any of our readers can give the desired information, it will be acceptable.

NEW AND RARE PLANTS.

ELÆAGNUS PARVIFOLIUS—SILVER THORN. (*See Frontispiece*).—We have selected for an illustration this plant, because it is destined, in all probability, to play an important part in the rural affairs of the United States. No one but at once grants the gravity of the fence question. It is admitted, that if the whole farm land of the Union were to be called on at once to renew the timber fences, the best part of our farmers would become bankrupt. A cheap live fence, and one easily managed, would be one of the greatest of blessings to the people of this nation.

So far the best thing has been the Osage Orange. This is the best chiefly because the seed can be easily procured, and because the plants are very easily and rapidly raised from seed. These are great advantages; but the disadvantages are its tree-like character, which requires much skilful labor to keep it down to proper dimensions; and also that it only produces

thorns on its young growth. Wood once formed never gets thornier; and should perchance naked places occur, it is almost impossible to fill these places in. As a sort of sop to this disposition, plashing and other patching schemes have been adopted, all of which are tolerably successful in the hands of intelligent men who are not afraid of work. The fact, however, is patent as we travel through the country, that nine-tenths of the Osage Orange hedges planted in this country have become nuisances to everybody that has any relation to them.

Heretofore few plants which are but naturally shrubs, grow fast enough to make a protective hedge within a reasonable time, or if they do, are deficient in some other element of a good hedge. This Elæagnus seems to be nearer our idea of a good hedge plant than anything we have seen. Some years ago a small quantity were set out for trial on the grounds of the Experimental Garden at Washington; and when the writer saw it, in company with Mr. Wm. Saunders, he was informed that it had proved entirely satisfactory in every respect.

It does not grow more than a few inches high the first year from seed; but these small seedlings dibbled out in the hedge row, grow as rapidly as Osage Orange transplanted the first season.

We saw, recently, a line half a mile long set out last spring, mere threads then, most of which are two feet high, and thick and bushy now. They look very harmless the first year, having no thorns; but there are large numbers of short branches, from a quarter of an inch to two inches in length, and these become *sharp spines*, the next year. These are well shown in the plate. The older the plants the spinier they become,—an excellent feature in a first-class hedge plant. The second and third years branches are produced from three to five feet long, thus soon reaching a good hedge height. But the plant rarely shows any disposition to go above six or eight feet high, when the plants are massed together. When they reach this height, they grow by sending strong shoots out from the stems near the ground, thus perpetually self-thickening,—another excellent feature. If pruned they make a first-class hedge; if totally neglected they are still protective, and not the useless eyesore of an Osage Orange. Plants three or four years old seed, so that in a few years with any moderate encouragement, plants in abundance could be obtained.

Besides its protective value, it has a very beautiful appearance; the under side of the leaf, as well as the young growing branches, are silvery, whence its common name. South of the Potomac it would probably be an evergreen. In Pennsylvania it holds its leaves to Christmas. The flowers are greenish-white, not showy, but resemble in fragrance the celebrated English hawthorn. The berries which succeed are of a mottled red, as shown in the plate. How much cold it will stand before it becomes injured is not known to the writer. It has remained uninjured in the highest degree in one situation, when the last year's shoots of the Osage Orange and Harney Locust have been destroyed, and when the thermometer has been 14° below zero. It will probably endure much more.

It is called, in European catalogues, *E. reflexus*, and some other names, but De Candolle adopts Wallich's name, *E. parvifolius*. It is a native of the Himalaya Mountains.

DOUBLE CINERARIAS.—Among the most striking novelties of the past year are Double Cinerarias. These have occasionally appeared in the hands of English florists; but they have never succeeded in fixing them, so as to produce a distinct race. The more patient Germans have, however, done the thing at last, and Haoge & Schmidt, the seedsmen of Erfurt, Prussia, announce that they will distribute the seeds this season. They are represented to be as double as the common pompone Chrysanthemums, and to embrace most of the colors already known in single ones.

We can imagine nothing more beautiful than such a set of improved Cinerarias will be, and we cannot but regard the introduction of such novelties as these, after so many years of persevering attempts, as among the grandest floral triumphs of the age.

NEW ROSES.—E. Verdier, the celebrated rose grower of Paris, sends us the following list and descriptions of the best new roses of the past year:—

HYBRID PERPETUALS (Hybrids remontants.)

Antoine Castel.—Tree vigorous with strong erect shoots of a reddish tint, numerous dark spines, foliage with 3 to 5 leaflets round and leathery, very little serrated, and of a pale green color. Flowers of medium size, very double; color bright rose or light cerise, shaded with a

dark hue, and white stripes. Similar in growth as Prince Kotchoubey.

Ernest Herger.—Tree very vigorous with erect reddish shoots and numerous short straight pink spines. Leaves with 5 dark green leaflets with purple points. Flowers large, full of a deep bright purple.

Francis Courtin.—Tree very vigorous with strong erect dark green shoots and numerous straight reddish spines; leaves with 5 leaflets very large of dark green color and but little serrated. Flowers large, full, fine cup shape, frequently 3 top together, rarely solitary; outer petals large, reflexed and imbricated, color purplish cerise, outside rose with white stripes—very fragrant; a free and abundant bloomer and of the highest merit.

John Harrison.—Tree vigorous with erect reddish shoots, long and pointed spines; leaves with 5 leaflets deeply serrated. Flowers very large, full, of fine cup-shape; color dark brilliant crimson strongly shaded with a velvety blackish hue—very effective variety!

Madame Laison Lierval.—Tree vigorous with very strong light green erect shoots; very few elongated slightly reflexed brownish spines. Leaves light green with 5 to 7 leaflets deeply serrated. Flowers very large, very full and of fine form; color fine carmine with brilliant center. Calyx surrounded with very long sepals. A very free and continuous bloomer, seedling of Victor Verdier.

Miller Hayes.—Tree vigorous with erect reddish shoots and few short brownish spines; leaves with 3 to 5 light green leaflets and red leafstalks; flowers large, full, and of fine cup-shape, generally solitary, sometimes 2 or 3 together; thick petals, color crimson with bright center and shaded dazzling velvety red. First-rate variety; seedling of Charles Lefevre.

Paulin Talabot.—Tree vigorous with erect light green shoots and very rare, short, straight reddish spines; large light green leaves with 3 to 5 leaflets deeply serrated; flowers large, full and of fine form; color dark dazzling rose or reddish carmine. A very free bloomer and altogether of great merit!

President Hardy.—Tree vigorous with erect reddish shoots and irregular rosy spines; leaves light green with 3 to 5 leaflets deeply serrated; flowers large, full and of fine globular form, and from 4 to 8 together; color purplish carmine.

Theodore Bucheter.—Tree vigorous with erect reddish shoots, numerous brown irregular spines; leaves with 5 leaflets, deeply serrated, dark green; flowers large, full and of fine form, purplish velvety violet with fiery center.

Thomas Mills.—Tree very vigorous with erect somewhat reflexed light green shoots and irregular short, nearly straight rosy spines. Leaves with 5 leaflets, large, accuminated, of a dark green, and finely serrated. Flowers extra large, full and of fine cup-shape; color dazzling bright rosy carmine with whitish stripes; very free bloomer, and altogether of the greatest merit.

DOMESTIC INTELLIGENCE.

THE OSAGE ORANGE.—The *Maclura aurantiaca* has become a familiar shrub in most parts of the United States, from its general use as a hedge-plant; but it is now proposed to utilize the Osage Orange for other purposes. A decoction of the wood is said to yield a beautiful and very permanent yellow dye, and this decoction, carefully evaporated, forms a bright yellow extract called aurantine, which may be used in imparting its color to fabrics. In addition to this coloring-matter, the wood of the Osage Orange is rich in tannin. Experiments made in Texas represent that hides are tanned quicker with the wood of this tree than with oak bark. The seeds yield a bland, limpid oil, resembling olive-oil, and which may, in general use, be substituted for it.—*Report of Department of Agriculture.*

FLOWERS AT THE NEW YORK STOCK EXCHANGE.—"A few days ago," states the *New York Daily Bulletin*, "some of the most sentimental brokers doing business upon the Stock Exchange, made up a pool of a small amount, by subscribing 25 cents each, for the purchase of a handsome terra-cotta vase, which was placed upon the large table in the Exchange, to be filled with fresh-cut flowers every morning by Mr. Alexander Stewart. The entire arrangement,

in fact, was made at the instigation of Mr. Stewart, who has adopted this method of humanizing the board. It is stated that the brokers readily handed in their quarters, particularly the young ones, many of whom remarked that the flowers would remind them of the green fields of their youth, and of the days when they were young and innocent. If the flowers upon the table are the means of giving a pleasing sentiment to a single broker, surely their mission is not in vain. Mr. Stewart, who is head missionary in this matter, has already been the recipient of many congratulations, and well he should be, for now that he has driven the entering wedge and opened up the way, it may be readily anticipated that most of the religious bodies in the city will be extending their missionary work to this new and most prolific field."

ORNAMENTAL HEDGES.—Mr. Edwin Marsh, nearly a mile west of Agawam Center, has a very handsome hedge of white pine. This tree was placed by Downing at the head of the beautiful evergreens. Planted near it is a well-trimmed hemlock hedge, and opposite, on the grounds of Mr. Goddard, very beautiful hedge of the American arborvitæ. On account of its brighter and never changing green, we had, in this case, to give our preference to the white pine. For dry, sandy soil, it is peculiarly adapted.—*New England Homestead.*

HALE'S EARLY PEACH IN CANADA.—Commenced to ripen in St. Catharines about the 20th of August. The trees were well loaded with fruit, but it rotted very badly as it began to ripen, so that only a small portion of the fruit came to maturity in a perfect condition.—*Canada Farmer.*

BLACKBERRIES IN CALIFORNIA.—The California *Agriculturist* notices an acre and a half blackberry patch near St. Jose, from which were picked sixteen tons of fruit, and adds:

This is the second crop that he has gathered, as the vines are but three years old. The soil is a rich, light alluvial, and he cultivates thoroughly and cleanly. The plants are four to eight feet apart. He irrigates from the time of blossoming while the fruiting lasts, as often as once a week, and says that it pays to irrigate copiously. The variety cultivated is the Lawton. One man will pick from 100 to 112 pounds per day, and it has required seven men constantly at work to pick the fruit from one and a half acres during the ripening season.

SMOKE AND FROST.—A congress of vine growers has been held this autumn in the south of France, whose members, before separating, tried a most interesting experiment. This is a plan to counteract the destructive effects of frost—which, at certain critical periods, is fatal to their crops—by the creation of clouds of warm smoke, which shall hover over the ground. Iron vessels, containing a preparation principally of tar, having been disposed at intervals over the vineyards, were set fire to, and produced thick clouds, which hovered over the land and spread for miles around. An important point on the plan is its cheapness.—*Country Gentleman.*

A HORTICULTURAL SOCIETY WANTED IN BALTIMORE, M. D.—The *American Farmer* says of the Philadelphia Horticultural Exhibition: The display of *foreign* or *hothouse grapes* was not remarkable. We thought those shown by Philip Reilly, gardener to Mrs. Merrick, were the finest, but the judges thought otherwise, and awarded the prize to Gebhard Huster, gardener to Mr. J. B. Heyl. We feel very confident that Mr. Fowler, gardener to John Hopkins, Esq., of this city, and who formerly competed for and took off many of the prizes on grapes at this show, Mr. Frazier, at W. T. Walters', Esq, and Mr. Frazer, at John W. Garrett's, Esq., had each of them, this season, grapes far superior to any shown at this exhibition; and we regret very much that Baltimore was entirely unrepresented there, the more especially that our skilful gardeners and amateurs have no opportunity to display their production at the show of any home society—and this too in a city of 300,000 population, while scarcely a town of 20,000 in the North but has its horticultural society!

The exhibition was very largely attended, as is usually the case. Although the society under whose direction the shows are held is a wealthy one, it doubtless, notwithstanding its liberal schedule of premiums, loses no money by them, and we see in this fact an additional argument why Baltimore, with its intelligent and cultivated people, should not much longer be without a Horticultural Society, with at least spring and fall shows.

FOREIGN INTELLIGENCE

PUBLIC DINNER TABLE DECORATION.—The most striking change noticeable in London for some time past has been the marked increase of the button hole flower and bouquet trade. Half a dozen years ago such bouquets were to be had only in a few places; now shops full of them are seen in all our leading thoroughfares, and even hawkers in the streets sell tastefully arranged tiny bouquets. At the same time public taste has shown much improvement as regards table decorations and other indoor floral ornaments. Hitherto, so far as we have seen, the floral decorations of public dinner-tables have been poor and stiff in the extreme. At a dinner given at the Inns of Court Hotel, more than the beauty of a dozen flower-gardens was tastefully arranged in the great hall of the hotel. Thousands of flowers and plants were employed, and these all in the freshest health. In additional to the best flowers and plants usually employed for table decoration, such novelties as superb pitchers of various kinds of Nepenthes depended from some of the vases, but the charm of the whole consisted in the tasteful artistic arrangement. No stiff, poor, flat or round-headed compositions were these; but free and graceful as nature itself. All the principal varieties of Nepenthes were used, as well as the long trumpet-shaped Sarracenias judiciously arranged with Adiantum Farleyense, and here and there glowing spathes of Anthurium Scherzerianum, long and graceful fronds of various Ferns, large spikes of Dielytra spectabilis, and the pretty curving fronds of Solomon's Seal. The glass vases were about 18 inches high, and the size of each group of flowers when arranged would be about 2 feet 6 inches across the widest part; these were set at intervals along the tables, and between them were placed "Dobson" dishes. These were filled in pairs to match with white, pink and scarlet; the upper portion of the dish was scarlet Geranium, with crowning masses of Geranium Christine resting on Lycopodium denticulatum. The lower part or base of each stand had its bed of Lycopod, with here and there magnificent blooms of Marechal Niel and other grand Roses, interspersed with Lilies of the Valley. The whole of the dessert dishes were surrounded with glass circles filled with Lycopod and fine trusses of scarlet Geranium Leonidas, one of the finest; the old favorite Dr Lindley Madame Vaucher white, and the pretty Christine, pink. Mr. Wills considers these three colors the most effective for dinner-table decoration, and seldom uses any other colors. He pays upwards of £400 annually for the cut blooms of these three varieties, and upwards of £700 a year for Lycopodium denticulatum. His weekly consumption of this simple plant is over 300 dozen during the London season. The whole of the floral decorations were supplied by Mr. Wills.—*The Garden.*

MUSHROOMS.—"Anxious," fond of Mushrooms, but hitherto unsuccessful, with a low close shed 18 feet long and 11 feet wide, and having about a bushel and a half of horse droppings every day, with about as much littery straw, wants to know how to get the most Mushrooms most easily. In such a case, as the beds are to be on the floor, we would divide our space into four equal parts, with a walk of 2 feet or 30 inches down the centre. This would give room for four beds 9 feet long and rather more than 4 feet in width. Our shallowest beds we would have about 12 inches deep in front, and from 15 to 18 inches deep at back. For winter work we would have them a little deeper, and depend on surface covering to keep up the necessary heat. Now, there are many ways of making such beds. We will put ourselves just in the position of "Anxious," and advise him to do as we have frequently done. Collect the droppings with nearly an equal portion of short litter for a week or ten days, and lay them in any place, not too thickly, where no rain will fall on them. Then add a barrow-load or two of dry soil, mix all together, and make this the base of the 9-feet bed. Beat it firmly together, and it will heat very moderately. Then every second day add the droppings, and the same amount of short, dryish litter all over, tread or beat, and then put a little dry soil over. Continue the process until the necessary height is secured, as referred to above, for the different seasons. By this plan, as will be perceived, the bed will never become very hot, and the bulk of the manure will be fresh—full of nitrogenous matter—and, therefore, capable of carrying a heavy crop of Mushrooms. We have tried many modes, and successfully too, but never one with more success than the above, and it is peculiarly applicable where a bushel or so of droppings can be obtained every

day. The success will greatly depend on preventing overheating by the frequent beating and the adding of a little dry earth. Street sweepings or road scrapings when dry are admirable for this purpose. People are slow to learn that fermenting material, such as dung, will heat mildly and keep up the heat long in proportion as it is so consolidated to keep out air, or rather prevent its free entrance. By such a mode the manure is not exhausted as it often is when thrown into a heap and allowed to ferment freely.

If we had the droppings of a single horse, and had leisure, the above is the mode we would adopt. Why do you not adopt it now? Just because we could not easily get the droppings regularly, and amidst the multiplicity of matters demanding attention we should not be able to attend to Mushroom bed-making every day or every other day. Those who try the plan, however, will soon be satisfied that manure cannot be put in the beds too fresh, provided the layers are so thin and compressed that violent heating is avoided. Such beds generally become a mass of spawn, and continue bearing a long time. A peculiar treatment, however, has something to do with long bearing. When the beds seem a little exhausted it is well to sweep them clean, and allow the surface to become a little dry. Then, in eight or ten days, make a few small holes over the bed, and give a good watering with water at from 80° to 90°, so that the water will pass down into the manure, pat the bed gently over with the back of a clean spade, cover with clean litter to keep in the moisture, and often in such cases in a week or two you will have a white carpet of Mushrooms.—*Journal of Horticulture.*

Hydrophobic Insects.—At the meeting of the Entomological Society, Mr. Muller read a paper containing some remarks concerning the habits of certain Gall-producing Saw-flies of the of the Willow, which are said to avoid those portions of the tree that overhang water; and he suggested a practical application of the theory, to save choice fruit trees from the attacks of insects, by surrounding them at the base with glass, which, it is well known, is often mistaken for water by aquatic insects.—*Gardener's Chronicle.*

Causes of the Rotting of Fruit.—According to Decaisne, the rotting of fruit is produced by two microscopic fungi, which develop in moist, confined air; namely, *Mucor mucedo* and *Penicillium glaucum*, infinitely minute germs of which are continually floating in the atmosphere, and which attack more especially any injured or abraded portion of the surface. If now, the fruit be wrapped up in cotton, or with soft tissue-paper, or, still better, with waxed paper or tin foil, the introduction of these germs will be prevented, and the fruit can be kept for a long time without any appreciable change.

How Professor Fries Became a Mycologist.—By the time I had completed my twelfth year I was acquainted with all the principal plants of the district, and even now, at the distance of more than fifty years, most gratefully do I recall how I was walking with my mother in search of strawberries through a wood partially burned, when it was my fortune to light upon a noble specimen of Hydnum coralloides. This discovery first incited me to make the tribe of funguses my study; but on turning over Liljeblad's *Svensk Flora*, my only scientific book, I was annoyed to find myself ignorant of the word "lamella," there so frequently recurring. So, shortly after, walking with my father, I said to him: "Dic, pater, quid est lamella?" for my father never suffered me to speak to him except in Latin, so that I picked up Latin even before my native Swedish. "A lamella," he replied, "is a thin plate." With this explanation, the phrase seemed to me to describe so happily the fructification of agarics, that by the next day I knew all the genera contained in that excellent work.—*From a translation of an auto-biographical sketch in the current volume of the Woolhope Club.*

Button-Hole Bouquets.—Few seem to understand the difference between a button-hole flower and a button-hole bouquet, yet it is very great. The button-hole flower should be, as the word signifies, a flower, meaning a single one; whereas a bouquet means a number of flowers arranged together according to taste. Having, I hope, explained the difference between the two, I shall endeavor to point out what constitutes a nice arrangement for button-holes. Flowers selected for mounting singly should be very choice; in fact, whatever flower is chosen should be a specimen in itself. One of our prettiest coat flowers is a white or pink Moss Rose; this I like to see with merely a leaf belonging to itself behind, and not Ferns, as one constantly sees in florists shops Ferns, to my mind are better

suited for Orchids, Gardenias, &c., than for Roses. An Orchid nicely arranged in the centre of a frond of maidenhair looks well, the delicate Fern setting off the Orchid to perfection; in short, Ferns of this class are better suited to go with indoor than with outdoor flowers. Bouquets generally consist of three or more different kinds of whatever flowers may be in season, and a little Fern mixed through them. A little bouquet before me is composed of a half open white Camellia-bud, sprays of Lily of the Valley, and a few pips of a white Hyacinth, with a little Fern mixed through the whole. A great fault too often seen in button-hole bouquets, is their large size and the way in which the flowers seemed packed, as it were, together; a few common hardy ones, if lightly placed, look often far better than tender flowers badly arranged.—A. H., Upper Norwood.—*The Garden.*

ADIANTUM FORMOSUM.—The above named Fern is certainly an exceedingly useful variety. It is very easily cultivated, and can be propagated freely; the mature fronds have also the good quality of keeping longer after being cut than any other of the species; but that it is more beautiful than A. cuneatum I cannot admit. It is quite as easy to grow. I noticed it in an article on Ferns last year. The method alluded to of inverting a small garden saucer inside a larger one, so that the bottom of the pot just touches the surface of the water is good, when the plants have quite filled their pots with roots. I have some Ferns which are grown for exhibition, and must not we shifted into pots larger than 12 inches in diameter; they require watering twice or thrice a day in summer, and often suffer from neglect when standing on the stage with other plants, but when the pots are placed bodily in saucers of water, they are not a tithe of the trouble, and seem to do well with their treatment.—*Gardener's Record.*

CHOISYA TERNATA.—Amongst the supposed tender plants submitted to forced exposure last winter in Paris, the *Revue Horticole* mentions that at Sceaux one plant in particular, the Choisya ternata, withstood all the rigors of the situation, and may therefore be regarded as hardy—a great additional merit. This Rutaceous shrub comes from the temperate parts of Mexico, and has evergreen trifoliate leaves, with elliptic-oblong leaflets, and large white five-petaled flowers, disposed on a sort of terminal corymb, with trichotomous branches, and having a very showy character.—*Gardener's Chronicle.*

ABSORPTION OF MOISTURE BY LEAVES.—Mr. M. Cailletet has lately been investigating the question as to whether the leaves of plants are capable of absorbing water in a liquid state; and sums up the result of his experiments, by stating that the fact seems to be demonstrated that a plant growing in a humid soil, and receiving by its roots the quantity of water necessary to its normal condition, does not absorb the water which moistens its leaves, but that such absorption takes place as soon as the leaves begin to wither, in consequence of the dissication of the soil. In this way he explains the phenomenon of certain plants maintaining a healthy condition without any contact with the soil, and even absolutely isolated from all assimilable substances. Thus, a specimen of *Pourretea*, a rootless Bromeliaceous plant, maintained a healthy existence and exhibited considerable increase in weight, while suspended for more than six years in the air by a wire. No moisture ever reached it except that from the garden syringe, and yet it was continually putting out new leaves and flowering abundantly.

GLEICHENIA RUPESTRIS.—Fully agreeing with "T. B." as regards the great beauty of this, to my mind the queen of Ferns, I certainly come to a different conclusion as to why so few amateurs exhibit it. I say, and I think without fear of contradiction, that it is simply because of its great rarity we so seldom see it exhibited by either nurserymen or amateurs. In not one catalogue, and I possess all the principal ones, can I find it, though G. speluncæ, flabellata, dichotoma, dicarpa, and semivestita are quoted in many of them. I only know of three specimens—Mr. Mendel's, Mr. Baines', and my own: I have just been to measure mine. It is 2 feet 7 inches high, and not quite 4 feet in diameter. I grow my plant in the cooler Fern stove, and "T. B." is quite right that too much heat is injurious to all the members of this lovely tribe. My specimen has fairly started its new growth, and I daresay many of your readers will see it exhibited during the coming season.

The great difficulty with Gleichenias is propogating them. Division is dangerous, and often fatal, while fructification is, with me at any rate, unknown. I am aware that seedlings have been

raised, for Mr. Bull's traveler informed me that Mr. Bull has been successful in raising some upon one occasion.

Let me conclude by making a remark about Adiantum farleyense. I possess four plants of it, one a very fine specimen is 4 feet in diameter, yet I have never seen a fertile frond, and Mr. Williams, of Holloway, when calling upon me a few weeks ago, said that his experience was the same.—*Cottage Garden.*

EPIPHYLLUMS.—These beautiful flowers are much grown and well understood by all practical men, but there are many young gardeners and amateurs to whom a few words of advice may be of service. Epiphyllums are easily propagated by cuttings taken off at a joint and planted in light sandy soil in well-drained pots, and placed in a warm house, and the soil kept rather dry until they have roots. They should not be exposed at this stage to brilliant sunshine during the middle of the day, but a few hours' exposure to the sun each day is better than keeping them constantly shaded. They may be wintered in a warm greenhouse if kept moderately dry at the roots, but they make a better and an earlier growth when wintered in a temperature not less than 50° at night, and 55° to 60° by day.

It should be remembered that they are at all times impatient of too much moisture at the root, and that they like a free open soil. For established plants there is nothing better than turfy loam leaf-soil, peat, and very coarse sand in equal parts. They do not require overmuch pot-room: a shift into a pot two inches larger once in two years, if well drained, will suffice to keep them growing and in good health.

Those who have the forcing houses at work, or the convenience of a stove, should shift their stock if required, and then give them the aid of more heat than they would enjoy in a common greenhouse. Water sparingly until there are signs of their commencing to make new growth. After they are fairly started let them have more water and air. By the beginning of June any house will suit them, provided it is airy, and not shaded.

They will well repay the cultivator for a little extra care in the spring, as they make an earlier growth with the assistance of a little extra warmth at that season. This gives them more time to make and mature their growth, and larger and more blooms is the result.

There are different methods of growing them. Some prefer them on their own roots, while others like to have them on stems a foot or more in height. They are easily grafted upon any of the larger-growing cacti, so that the stem may be had of any height desired. For my own part, I like to have them on their own roots and grafted on tall stocks, as a greater variety of form is obtained. Specimens on stems about 12 inches in height, in a 6-inch pot, are admirable subjects for dinner-table and indoor decoration, as also are dwarf plants on their own roots for filling vases.

I have not named any variety to be grown, for the reason that they are so beautiful that I am not acquainted with any one variety that is not worth growing. If I have a preference, it is for *E. truncatum albescens*, *E. truncatum cruentum*, and *E. truncatum violaceum*.—R. P. B., in *Gardener's Magazine.*

THE BLUE AFRICAN LILY (Agapanthus umbellatus).—This is one of the most beautiful and useful of the Lily tribe, and one which, though commonly considered to be a greenhouse plant, will succeed well in a south aspect in the open air. There is a white and also a variegated variety of it too, both of which are well worth attention. I, however, find the blue kind the most useful, as it remains so long in bloom, especially when set in a partially shaded situation, or just screened from the parching rays of a bright sun. Like the Scarborough Lily (Vallota purpurea), it is very suitable for placing in a porch or balcony, as well as for conservatory decoration. All the varieties of this Lily flower when well grown in a mixture of equal parts leaf-mould and rich fibrous loam, to which may be added one part lime-rubbish mixed equally with sand. They are easily multiplied by division of the roots, after which they require to be set in a shady situation until they make fresh roots and growth. When established they will bear more exposure to light. I have grown the ordinary blue Agapanthus for fourteen years, and have found it to be a most valuable autumnal flowering plant both in and out of doors.—J. Graham, *Woodcliff Gardens, Rawdon, near Leeds.*

PELARGONIUM MARIE LEMOINE AS A BEDDING PLANT.—I would strongly recommend the above to the notice of flower gardeners for the coming season. I had two large beds of double

pink Pelargoniums last season for trial, each containing about sixty plants of Madame and Marie Lemoine: Madame is not worth growing in comparison with Marie—the growth was irregular, and most of the leaves spotted, and the trusses of flowers small, while in Marie the growth was regular, and the foliage handsome, and splendid trusses of bloom, which stood the rain. It is a continuous bloomer (far preferable to Christine as a pink,) and requires liberal treatment. I have been told it is a shy grower, but have not experienced it.—A. Hossack, Ashburnham Place, Battle, in *Gardener's Chronicle.*

THE MOOR PARK APRICOT.—The Moor Park Apricot is said by some to have been introduced by Lord Anson and planted at Moor Park. By others its introduction is ascribed to Sir Thomas More, who, in the beginning of last century, is also said to have planted it at Moor Park. A third account is that Sir John Temple introduced it. Which of these is correct it is impossible now to determine, but it was not till the close of the last century that this Apricot attained a general cultivation. It was not in the Brompton Park catalogue before 1784, when it is mentioned under the name of "Temple Apricot." In 1788 is first called "Moor Park." In 1784 it was cultivated in that nursery to the extent of three rows, or about 300 plants; but in 1797 to the extent of thirty-five rows, or 3500 plants. The Moor Park is undoubtedly of French origin; it is either a seminal variety of the Apricot Peche—not the Apricot Peche of Duhamel, which is our White Masculine—but the Apricot Peche of Bretonnerie and Roger Scabol, or is identical with it. Our own opinion is that it is identical with it. It is said to have originated in Piedmont as a seedling from the Alberge. It is not mentioned in the "Jardinier Francais" of 1653, nor in any of the editions of De Quintinye. Switzer speaks of "a very large kind of Apricock that was cultivated at Woolhampton, Berkshire, as big as a Peach, and it is there called the French Apricock."—*Journal of Horticulture.*

HORTICULTURAL NOTICES.

THE ILLINOIS STATE HORTICULTURAL SOCIETY,

Will hold its Eighteenth Annual Meeting in Champaign, commencing December 9th, at 10 o'clock A. M., and continuing four days. The reports and discussions will include all departments in the theory and practice of Fruit raising and Tree growing. Papers upon the following subjects will be read by eminent Scientists and Horticulturists, viz: Meterology, Geology and Soils, Botany and Vegetable Physiology, Entomology and Ornithology, Ornamental and Timber Trees, Ornamental and Landscape Gardening, Vegetable Gardening, Orchard Culture and Vineyard Culture. The citizens of Champaign will extend hospitalities to members and strangers attending the meeting. The Illinois Central Railroad Co. will return members at one-fifth fare. The Indianapolis B. and N. Railroad, will return free.

O. B. GALUSHA,
Sec'y State Horticultural Society,
Morris, Ills.

FRUIT GROWERS' SOCIETY OF PENNSYLVANIA.

This Society will hold its Annual Meeting this season at Mechanicsburg, Cumberland County, on the 21st, 22nd, 23d of June, 1874. The practical details of fruit culture are generally fully discussed, and the meetings usually very fully attended.

Mechanicsburg is on the railroad leading from Harrisburg to Chambersburg, and very easy of access. In one of the most successful fruit regions of the State, there is no doubt much useful information will be elicited by the meeting.

WORCESTER COUNTY (MASS.) AGRICULTURAL SOCIETY.

In a newspaper before us we note that the horticultural department of the Annual Exhibition was a great success. We note with pleasure among the most successful exhibitors, Mr. Geo. Cruikshanks, one of our best gardeners, and we are pleased to add, one of the earliest of the subscribers to the *Gardener's Monthly.*

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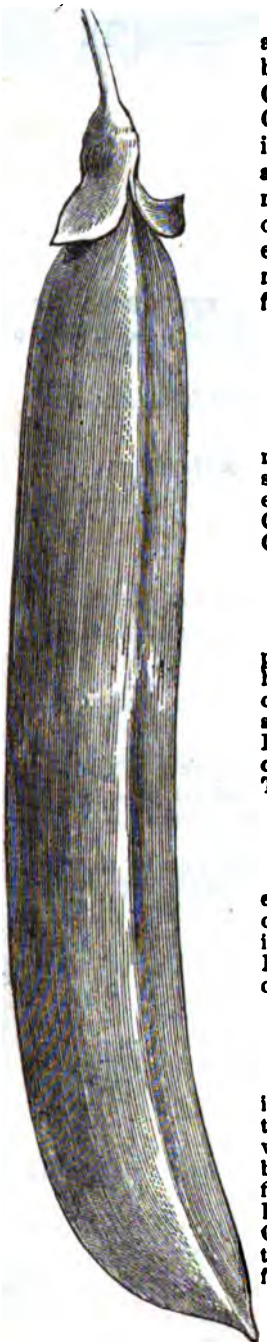

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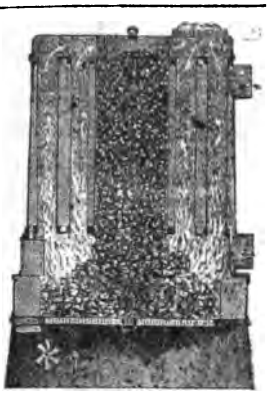

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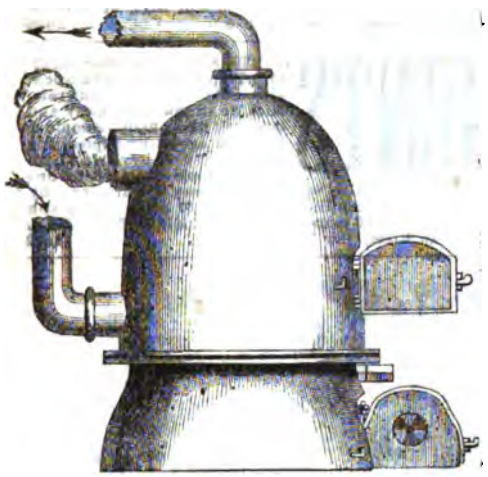
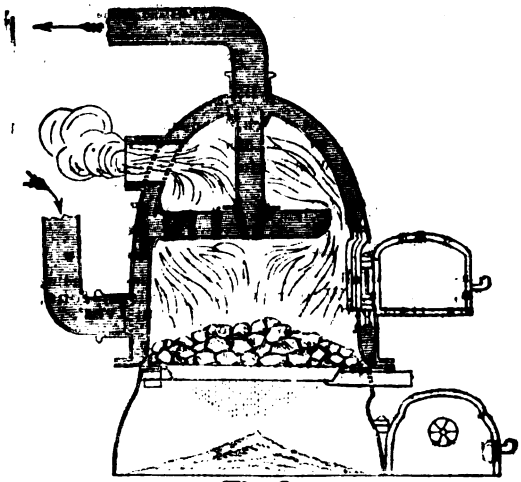


Fig 1.



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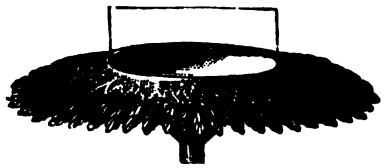

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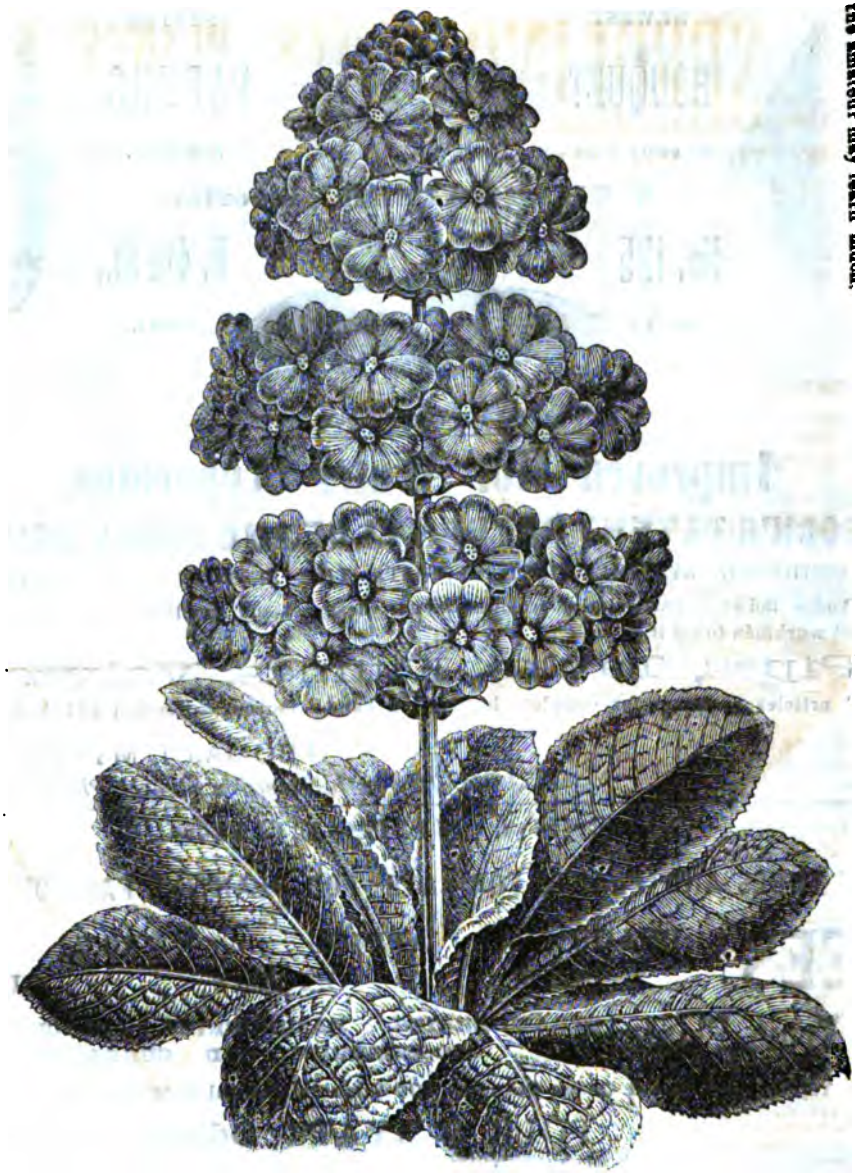

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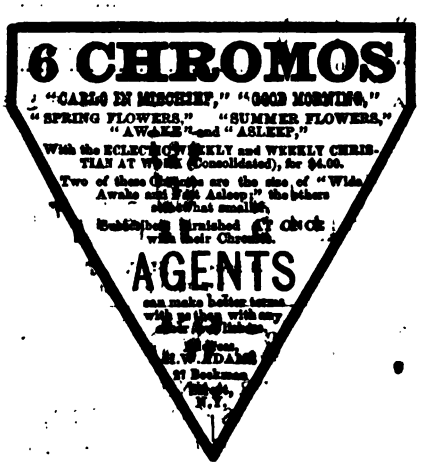

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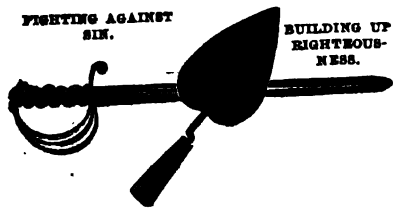

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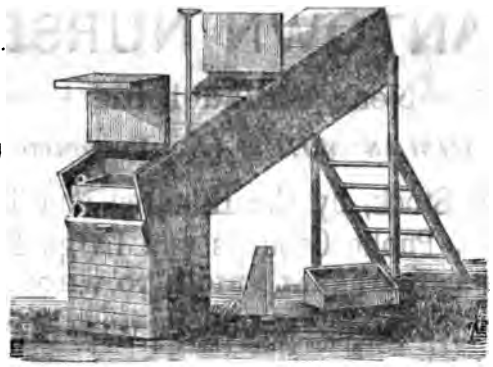

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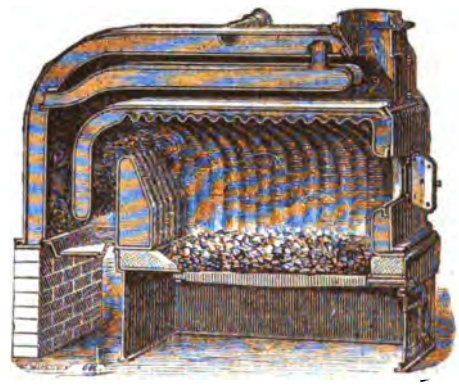

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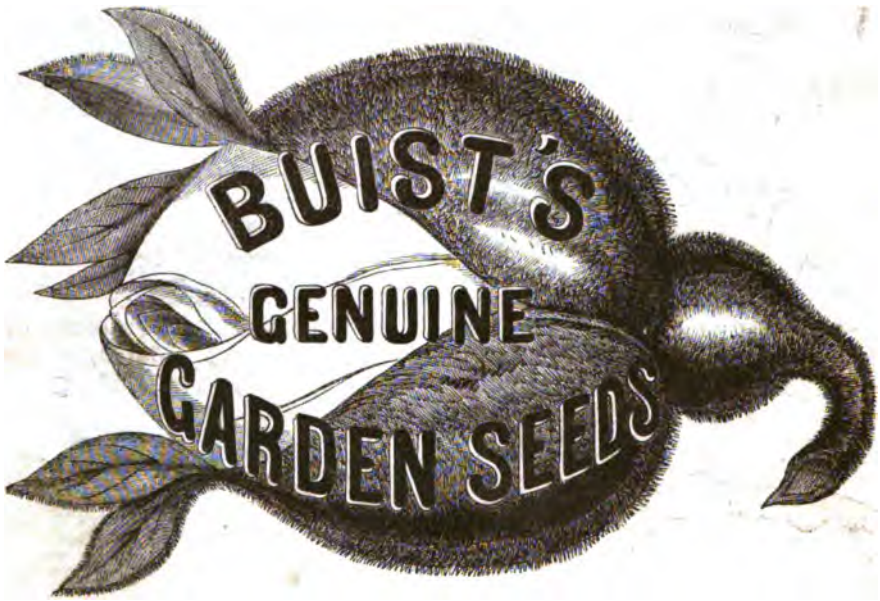

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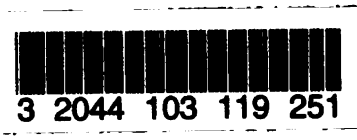
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